

Amateur Radio

Volume 76 Number 8
August 2008

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Amazing technology



A WW II Biscuit Tin Radio



Reviewed
in this
issue

The ICOM IC-7700

ISSN 0002-6859



REMEMBRANCE DAY CONTEST 16 & 17 AUGUST



HF 50 MHz Transceiver
FT-DX 9000D



HF 50 MHz Transceiver
FT-2000



HF 50 MHz Transceiver
FT-950



HF 50 MHz 10W
All Mode Transceiver
FT-450



HF/VHF/UHF All Mode
Portable Base Transceiver
FT-897D



Ultra-Compact HF/VHF/UHF
All Mode Transceiver
FT-857D



VHF/UHF All Mode
All Mode Portable
FT-817ND

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50 W 2 m
Dual Band FM Mobile
FT-2800M



50 W 2 m Ultra Rugged
Dual Band FM Mobile
FT-1802M



2 m/70 cm Dual Band FM Mobile
(2 m/70 cm/43 cm)
FTM-10R



2 m/70 cm Dual Band FM Mobile
(2 m/70 cm/43 cm)
FTM-10SR



5 W Ultra-Rugged, Submersible
2 m/70 cm Tri-Band FM Handheld
VX-7R/VX-7RB



5 W Heavy Duty Submersible
2 m/70 cm Dual Band FM Handheld
VX-6R



50 W 10 m/6 m/2 m/70 cm
Quad Band FM Mobile
FT-8900R



50 W 2 m/70 cm
Dual Band FM Mobile
FT-8800R



50 W 2 m/70 cm
Dual Band FM Mobile
FT-7800R



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Our Cover this month

Quite a contrast in technologies: this month's cover shows the World War II vintage MCR-1 'Biscuit Tin' radio and the modern IC-7700 solid state transceiver.

You can read a brief outline of the MCR-1 on page 31 of this issue, with the detailed IC-7700 review commencing on page 27.

Photo of the MCR-1 by Jim Gordon VK3ZKK.

Contributions to Amateur Radio

Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and/or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, 'How to write for Amateur Radio' is available from the National Office on receipt of a stamped self-addressed envelope.

Back Issues

Back issues are available directly from the WIA National

Office (until stocks are exhausted), at \$8.00 each (including postage within Australia) to members.

Photostat copies

When back issues are no longer available, photocopies of articles are available to members at \$2.50 each (plus an additional \$2 for each additional issue in which the article appears).

Disclaimer

The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's first and oldest National Radio Society

Founded 1910

Representing

The Australian Amateur Radio Service

Member of the

International Amateur Radio Union

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GippsTech 2008

The first weekend in July saw over 100 people at Monash University Gippsland Campus in Churchill for the 11th annual GippsTech technical conference. Yes – I must declare a conflict of interest, I am the Chair of the Organising Committee.

The program overflowed with technical content, primarily related to matters VHF, UHF and above. Novice and experienced speakers presented a wealth of material at a level that almost everyone could follow – even if sometimes only in principle, and not the details. While the amateurs enjoyed the technical content at Churchill, Gordon VK3PAA and Pauline Corrigan led the partners on a tour of regional highlights over the day and half of the conference. They visited three wineries during Saturday, with lunch at the Tinamba Hotel – well known in the region for the quality of its meals.

The technical program ran from 0945 to 1800 on Saturday and 0900 to 1300 Sunday. The tea/coffee breaks were shorter in duration than we usually plan, due to the number of topics on offer, and the lunch breaks allowed for good food provided by the local Lions Club, lots of discussion and some low key trading of a variety of goodies.

On behalf of the Eastern Zone Amateur Radio Club (Inc.), thanks to all who contributed: the club members and attendees who contributed in so many ways at the event and during the planning phase; the speakers, those who brought give away items, the Churchill Lions Club, Monash University Gippsland Campus and those that provided items for the raffle. Special thanks must go to Bryan and Richard, and their bosses, for the significant number of 24 GHz parabolic dish antennas, some included radomes, others were just the parabolic reflector. These high quality dishes sold rapidly at bargain prices. Even better for the local club, the proceeds were donated to the organising committee.

Many attendees enjoyed a get together on the Friday evening at a local bistro and almost 100 attended the conference dinner on the Saturday evening. During the breaks in the program and the meals, there was a large amount of discussion stimulated by the presentations during the weekend.

On Sunday afternoon, most started the often long trip home – we had attendees from VK1, VK2, VK3, VK4, VK5, VK6, VK7 and ZL.

Apart from following through on those thoughts stimulated by the weekend's presentations and informal discussions, there just remains the task of leveraging the documents from the presenters for the Proceedings volume – which should be available just in time for next year's event on the weekend of July 11 and 12.

August – a VK activity month

Traditionally, the August issue of AR has had some focus on the Remembrance Day Contest. We fitted a loose link to that focus onto the cover, with the MCR-1 'Biscuit Tin' radio, with a brief story about this radio on page 31. The contest rules are printed on pages 44 and 45.

This year the RD Contest coincides with the International Lighthouse and Lightship Weekend (ILLW) – not a contest but an international activity weekend. For further details, look at the official ILLW website at <http://illw.org/>. Whilst most of the ILLW participants may not be focussing on the RD Contest (very understandable), I am sure that you will be able to request a report and number from them if you ask nicely.

The final weekend of August sees the running of the ALARA Contest. Open to all, this contest represents a great chance for the "paper chasers" – those looking to qualify for awards. There should be many YL operators active over the weekend, so you should have a good chance to find the contacts needed for the ALARA Award – VK & ZL amateurs need only 10 contacts with ALARA YLs in four Australian call areas to qualify.

Closing comments

The days are slowly getting longer. Here in the southern states, the weather brings cold mornings, but occasional cool but sunny days. As the weather improves and the days grow longer, may you all make the time to progress the long list of outside amateur radio projects that have been accumulating over the wet winter months.

73, Peter VK3KAI

The Two Letter Callsign Ballot

In the April issue of Amateur Radio I wrote about the history of the ACMA embargo on the issue of two letter callsigns, and the quarantining of two letter callsigns when an amateur sought to renew his/her licence outside the time for renewal, and the process proposed for the conduct of a ballot, drawing attention to the request for comment on the process proposed.

The proposed process was set out in a paper published in that issue of the magazine. The paper was also placed on the WIA and ACMA websites.

As seems to be the case with everything associated with this issue, the times set out in the paper for the various steps to be taken turned out to be optimistic. That was because ACMA required the WIA to enter into a contract with it, and a number of quite complex issues arose.

Ultimately, on 15 July the necessary contract was finalised and signed, and so the final procedure is published in this issue of the magazine.

If you wish to participate in the ballot, you will need to complete the application form, which is downloadable from the WIA website, or may be obtained from the WIA office.

A list of the available two letter callsigns in each state and in the ACT and Northern Territory can be found on the WIA website.

A payment of \$59.74, including GST, is required to participate in the ballot. That charge is reasonably related to the anticipated cost of conducting the ballot. The costs associated with the ballot are considerable and it would not be reasonable for the WIA and its members to meet them.

The WIA will accept applications to participate in the ballot until 29 August 2008.

Full details can be found in the statement published in this issue.

But what was the result of our request for comment on the proposed process for the ballot?

Many amateurs took the time to offer comments, many going beyond the process issue and providing a valuable insight on many aspects of issues

associated with amateur callsigns. We have published a paper, "The result of the consultation", and it has been sent to all those who offered comments. While it will make this a very long Comment, because of the interest the subject attracted I set it out in full.

1. Introduction

On 1 April 2008 the WIA and ACMA published a joint paper, "Ballot for two Letter Callsigns", (the "Paper") following ACMA's request to the WIA to manage a fair and transparent process for the allocation of two letter callsigns in all states and territories by ballot, subject to certain broad principles imposed by ACMA.

As part of that process the Paper was published on the WIA and ACMA websites, published in the WIA's magazine "Amateur Radio" and publicised in the WIA Broadcasts.

The WIA sought comment on the proposed process for the ballot, and the time for comment ended on 30 April 2008.

This paper summarises the comments received, and sets out a response to a number of matters, and also indicates the further steps that will be taken in the process.

The ACMA has authorised this paper and the conclusions reached.

This paper will be sent to each person who lodged a submission as requested, and will also be published on the WIA website and in the WIA's magazine "Amateur Radio".

Comments received

The WIA received 84 submissions. A further anonymous submission was disregarded.

The submissions covered many points, and are summarised in the schedule to this paper.

The WIA is very grateful that so many amateurs took the time to make submissions in respect of the process proposed in the Paper. The comments have been most helpful, and we sincerely thank all who have assisted us in this way.

We address certain matters raised

specifically as set out under the following headings.

Seniority and CW

The major issue that emerged in the submissions was whether two letter callsigns should only be available to particular amateurs, able to demonstrate either "seniority" or a Morse code qualification, and not just an Advanced licence.

It was contended that two letter callsigns are a form of status symbol and therefore are highly sought after and submissions argued should therefore be restricted to those who hold a Morse code qualification.

16 submissions argued that two letter callsigns should be available only to amateurs who have held a licence for a number of years.

On the other hand, 31 broadly supported the process, so while many raised the issue, there was an almost equal number apparently supporting the method of qualification proposed.

ACMA is of the opinion that to restrict two letter callsigns to allocation on the basis of seniority or the demonstration of a Morse code qualification does not accord with the principles of equity and eligibility that it set when instructing the WIA.

It is the WIA's view that eligibility to enter the ballot should not be based on additional Morse code qualifications, which is one operating skill and is no longer required as a mandatory qualification.

Demonstrating how long an applicant has held an apparatus licence does not say anything about whether the licence has been used. On such a basis an applicant who has held an amateur licence for 25 years, but only operated over 5 years would take priority over an amateur who has operated extensively over 15 years.

It is really inviting the WIA to make value judgements of a kind that will simply lead to dispute.

Neither suggestion is supported by

continued on pages 19 & 21

Ballot for two letter callsigns

Purpose

This paper sets out the process for the equitable allocation of amateur callsigns with two letter suffixes (two letter callsigns) in accordance with the Principles specified by the Australian Communications and Media Authority (ACMA); and

This paper follows publication of the proposal paper in April 2008 (the "proposal paper") and a period of consultation with the amateur community. This paper is the final document referred to in the proposal paper.

This paper will be published in the August 2008 issue of the WIA magazine "Amateur Radio" and will be placed on the WIA website www.wia.org.au on 1 August 2008. It will be further publicised in August during WIA broadcasts. This paper will also be published on the ACMA website www.acma.gov.au

Background

In 2003-04, the Australian Communications Authority (ACA) carried out a Review of Amateur Service Regulation (the Review). The ACA conducted extensive consultation with the Amateur community throughout the Review process. The findings of the Review were published in Outcomes of the Review of Amateur Service Regulation. A key outcome of the Review was the decision to consolidate amateur licence options and certificates into three options: Foundation, Standard and Advanced. This outcome was implemented on 20 October 2005.

Prior to these reforms, only holders of amateur unrestricted licences were eligible to hold a two letter callsign. One result of the new arrangements was that Amateurs who previously held amateur limited and amateur intermediate licences became eligible to hold a two letter callsign under the new arrangements. This resulted in a high level of demand in some states and territories that could not be met by available supply. Accordingly, on 19 October 2005 ACMA suspended the issue of two letter callsigns until an equitable arrangement for their allocation could be put in place.

On 7 February 2008, ACMA introduced several more outcomes of the Review.

These reforms included a series of changes to Amateur licence conditions and the introduction of a class licence to authorise amateurs visiting from overseas. In addition, to streamline services for Amateur licensees, ACMA decided to delegate certain statutory functions and administrative services associated with Amateur licensing to the WIA.

As part of these arrangements, ACMA has requested that the WIA manage a fair and transparent ballot process for the allocation of two letter callsigns in all states and territories in Australia (the "Ballot"). Two letter callsigns will be available on an equitable basis to all qualified operators who are eligible to participate in the Ballot.

Principles

The WIA is required by ACMA to give effect to certain broad principles and conditions in regard to how the Ballot should operate. These are:

Eligibility. This should be limited to holders of amateur (advanced) licences (or a certificate of proficiency that would entitle the holder to an amateur (advanced) licence). Applicants should only be able to apply for a callsign in the state or territory in which they reside.

Equity. Ballot process to be impartial (with an independent or ACMA representative present). Amateurs should only be eligible to participate in the ballot if they do not already possess a two letter callsign. In addition, each applicant should be limited to one two letter callsign.

Preference. The ballot process should enable amateurs to express their preferences for individual callsigns prior to the Ballot. A list of available two letter callsigns should be made available to applicants prior to entry.

Charges. The WIA may charge an entry cost for the ballot that is reasonably related to the cost of the process.

Outcome. The WIA is to finalise results of the Ballot and advise ACMA the names of applicants who were successful in the Ballot

together with the two letter callsign they should be issued with if an application to vary their licence is submitted.

Pre-Ballot review

The proposal paper invited applications for review from amateurs who had "lost" their two letter callsigns since 19 October 2005 and could demonstrate that their failure to renew was due to exceptional circumstances.

All amateurs who applied for a review were able to demonstrate exceptional circumstances. Accordingly, their callsigns will not be included in the ballot.

Callsigns of deceased amateurs

The two letter callsigns of all amateurs who died on or after 1 March 2006 whose death is known to either ACMA or the WIA have been excluded from the ballot. In addition, in exceptional circumstances, other two letter callsigns may be excluded.

Persons eligible to apply

Any person who:

- holds, or who is qualified to hold, an amateur licence (amateur advanced station);

and

- resides permanently in Australia;

and

- is not a person who is, or in the past two years has been, a director, a secretary or treasurer of the WIA or Editor of "Amateur Radio" magazine or an employee of the WIA or the spouse or partner of any such a person;

and

- does not already hold a two letter callsign in any state or territory in Australia

is eligible to participate in the Ballot for the state or territory in which the person resides.

List of available callsigns

ACMA will provide the WIA with a list of available two letter callsigns by state and in the Northern Territory and the ACT. The WIA will publish that list on its website on 1 August 2008.

Ballot invitation

By publication of this paper in the August 2008 issue of the WIA's magazine "Amateur Radio" and by publication on the WIA's website, the WIA invites applications from eligible amateurs wishing to participate in the Ballot in the state or territory of their residence.

This invitation will also be publicised on at least three occasions during WIA broadcasts.

Amateurs wishing to participate must complete the application form that may be down-loaded from the WIA website, or obtained as follows:

- By mail addressed to:

Two Letter Call
The Wireless Institute of Australia
PO Box 2175
Caulfield Junction
Victoria 3161

- By email addressed to:

2lettercall@wia.org.au

- By facsimile to:

Two Letter Call
03 9523 8191

- By telephone between 10 am and 4 pm on a working day: (03) 9528 5962

All applications will require payment of a charge of \$54.30 (plus GST). The total application charge is \$59.74 (including GST).

This charge is reasonably related to the anticipated cost of holding the Ballot.

Applications for the Ballot

The closing date for receipt of applications for the Ballot will be 4 pm AEST Friday 29 August 2008.

Applications must be sent to the WIA by mail as follows:

Two Letter Call
The Wireless Institute of Australia
PO Box 2175
Caulfield Junction
Victoria 3161

Or by hand to:

The Wireless Institute of Australia
Unit 10, 229 Balalaclava Road,
North Caulfield
Victoria 3161

An application for participation in the Ballot delivered by hand to the WIA office must be delivered by no later than 4 pm EST on the closing date.

The WIA will treat mail received by postal delivery or by clearance from the Post Office box on the following Monday as being received in time. The WIA is not obliged to clear the box more than once on that day.

All applications for the Ballot must be accompanied by a cheque or money order for the charge of \$59.74 or a credit card authority in respect of the charge of \$59.74.

Any application for participation that is not delivered by the time specified or is incomplete or is not accompanied by a cheque or credit card authority for the fee will be disregarded.

Processing of applications

All complete and eligible applications will be recorded on a secure electronic database.

A ballot number will be assigned to each application in the order in which they are received on a state or territory basis. The allocation of a ballot number does not infer any order or preferences in the ballot. For example, the first application received from New South Wales will be attributed the Ballot number 2001. Similarly, the second application received from New South Wales will be attributed the Ballot number 2002.

Under this process, the identity of the applicant will not be known before the Ballot. The Ballot number will be used to link the details recorded on the database for identifying callsign preferences.

Ballot methodology

The Ballot will be conducted on a day and at a place to be announced. The Ballot will be conducted no later than Friday 19 September 2008.

An application number will be drawn out of a barrel in sequence until all available callsigns have been allocated or no further applications remain. The Ballot for all states and territories involved in the process will be conducted on the same day.

The WIA will ensure the presence of at least two independent witnesses at the Ballot. A representative of ACMA may also be present.

As each successful applicant is identified, the eligibility of the applicant will be verified against the ACMA database. If the callsign is available, the first preference of that applicant will be allocated to that applicant. If the first preference of that applicant is not available, the second preference of that applicant will be allocated to that applicant. If the second preference of that applicant is not available, the application will be held until all other applicant preferences have been exhausted, at

which point the remaining callsigns, in alphabetical order, will be allocated to the applicants whose preferences could not be met in the order in which they were originally drawn.

ACMA will be provided with a list of all successful applicants and the callsign recommended to be allocated to each applicant.

ACMA licence variation process

The WIA will advise by letter all eligible applicants of the Ballot outcome posted within 5 working days after the Ballot day. Applicants will be advised of the Ballot outcome whether they are successful or not.

Successful applicants will be provided with an application for variation of an apparatus licence and will be advised to complete the form and return it to ACMA by 10 October 2008, accompanied by a cheque or money order for \$41 made payable to "ACMA". ACMA will not accept credit cards.

The process will be completed by 24 October 2008.

Any two letter callsigns not the subject of an application for the variation of an apparatus licence received by ACMA by this date will be returned to the list of available callsigns and thereafter will be allocated to applicants for licences or applicants for variations of licences on a basis to be determined, having regard to the number of callsigns involved and the number of people seeking the allocation of such callsigns.

Summary of milestones and timeframes

The timetable proposed in the proposal paper has been varied and extended as set out below:

Step	Date
Invitation to participate in ballot	1 August 2008
List of available callsigns released	1 August 2008
Ballot closes	29 August 2008
Ballot conducted	By 19 September 2008
Applicants advised of ballot outcome, letters posted	By 24 September 2008
Last date for applications for variation	10 October 2008
Ballot process completed	24 October 2008

A 5 W CW transmitter for 1.8, 3.5 and 7 MHz with QSK

Drew Diamond VK3XU

Offered here are plans for a "sweet" little CW transmitter for three popular bands. It is an improved model, based largely upon a previous pattern published in the QRP journal Lo-Key (Reference 1).

Output power is adjustable between 0 and 5 W into 50 ohms from a 13 V dc supply. Frequency range is from 1.75 (1.8 MHz) to about 1.875 MHz, 3.5 to 3.75 MHz, and 7.0 to 7.5 MHz. Harmonics are measured at greater than 50 dB below fundamental.

The sturdy class-B power amplifier (Reference 2) can withstand extreme load mismatch (including accidental short or open-circuit load) for reasonable periods without damage, and remains stable, even when feeding less than perfect loads. In operation, solid-state break-in, or "QSK" T/R, allows the user to listen on the frequency in the spaces between words and some characters, as they are sent.

Circuit

To eliminate any warm-up drift between "overs", the oscillator runs continuously at twice the highest output frequency, 14 to 15 MHz. Hence, the VFO signal cannot be heard during receive periods.

Output from the 2N5484 VFO buffer (Figure 1) is applied to the clock input pin 9 of a 74HC175 CMOS 4-stage counter, configurable to divide by 2 (to give 7 MHz), by 4 to give 3.5 MHz, and by 8 to give 1.8 MHz. The diode clamp moves the 6 V p-p sine signal (from the

buffer) fully into the positive region, thus driving the counter without need of a Schmitt trigger. The first stage must wait for a high at the (R)eset input, pin 1, in order to output a square-wave at pin 15. Configuration of the required division ratio is done using a 4066 CMOS switch, settable for each band by S1a.

An NE555 timer chip performs the transmit/receive (T/R) timing function. On key closure, the low presented to the (T)rig input, pin 2 of the '555 causes a high to output at pin 3, which is applied to the Reset pin of the 74HC175. The same high from the '555 is also applied to the base of a 2N2222 in the T/R circuit, thus turning off the second 2N2222, which disconnects (turns off) the two routing diodes, thereby effectively isolating the receiver's input from the transmitted signal and the antenna.

Key activity is also applied to the base of a 2N3638 keying transistor. When base current flows via key closure to ground, +6 V is supplied to the PA bias potentiometer (which also functions as power output control) and the 74HC04 driver chip, five gates of which are paralleled to supply sufficient drive to the gate of the PA MOSFET. A 220 nF capacitor between base and collector of the '3638 provides a nicely shaped ramp of about 3 ms rise and 10 ms fall, for crisp, click-free keying. Immediately keying (sending) stops, the '555 timer will "time-out" (determined mainly by the 1 MΩ resistor and 470 nF capacitor),

whereupon the T/R will re-connect the antenna to the receiver's input.

Considerable harmonic energy exists at the output of the PA, so the signal must be passed through an effective low-pass filter, switched in for each band. Those shown were modelled according to data provided in Reference 3.

Construction

The home-made aluminium chassis/cabinet pictured in Photo 1 measures 60 x 210 x 135 mm HWD. The bottom chassis panel functions as a heat-sink for the IRF612 PA MOSFET (very little waste heat is generated).

Divider, driver, PA and T/R are accommodated upon a "paddyboard" circuit board (Reference 4) shown in Figure 2 and Photo 2. However, any preferred construction method will serve, provided that signal carrying component leads (for example coupling and by-pass capacitors, etc.) are reasonably short, the general plan is followed, and plenty of "ground-plane" copper is retained on the circuit board.

A rectangular hole of 12 x 18 mm should be provided in the main board so that the IRF612 may be attached directly to the bottom panel - include a silicone washer and insulated spacer. A solder tag for the drain connection is fitted under the 3 mm hex fixing nut. The 74HC175, 4066 and 74HC04 chips may be inserted into appropriate IC sockets, which in turn are soldered, tracks uppermost, to suitably sized pieces of Vero board. Remember first to cut a shallow slot (junior hack-saw) along their length to separate the pins each side of the Vero "substrate". Avoid poking the socket pins right through (so as not to short to board foil). These are super-glued (sparingly - no glue on items that must take solder) upon the main circuit board as shown.

Do not mix chip "species" - TTL or LS ICs may not work in this circuit.

The NE555 chip may be accommodated in an 8-pin socket, which in turn is soldered to a 20 x 20 mm "substrate". The angled cuts are at 65 degrees to the axis.



Photo 1: The 3-band QRP CW transmitter.

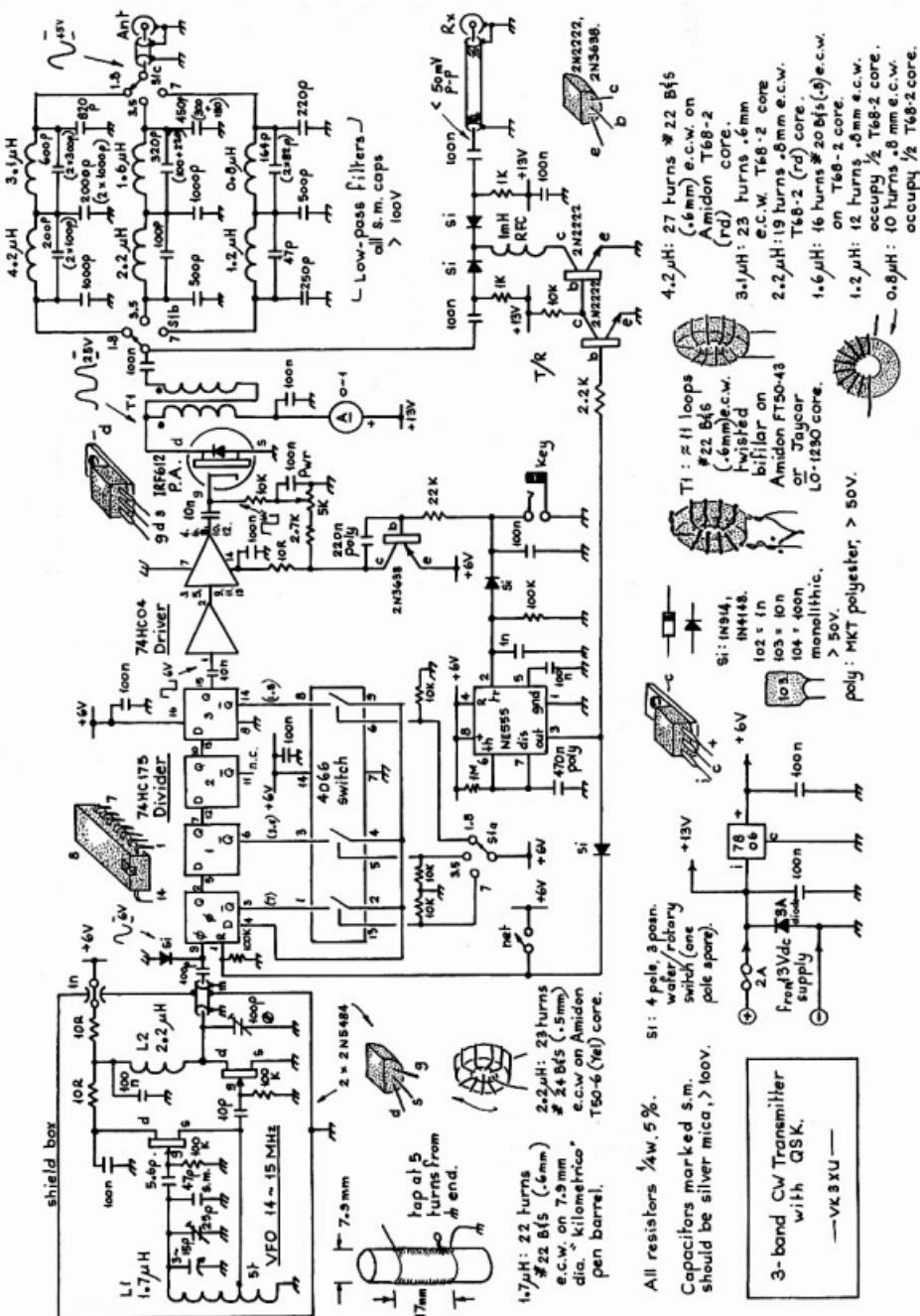


Figure 1: Schematic of the 3-band CW transmitter with QSK.

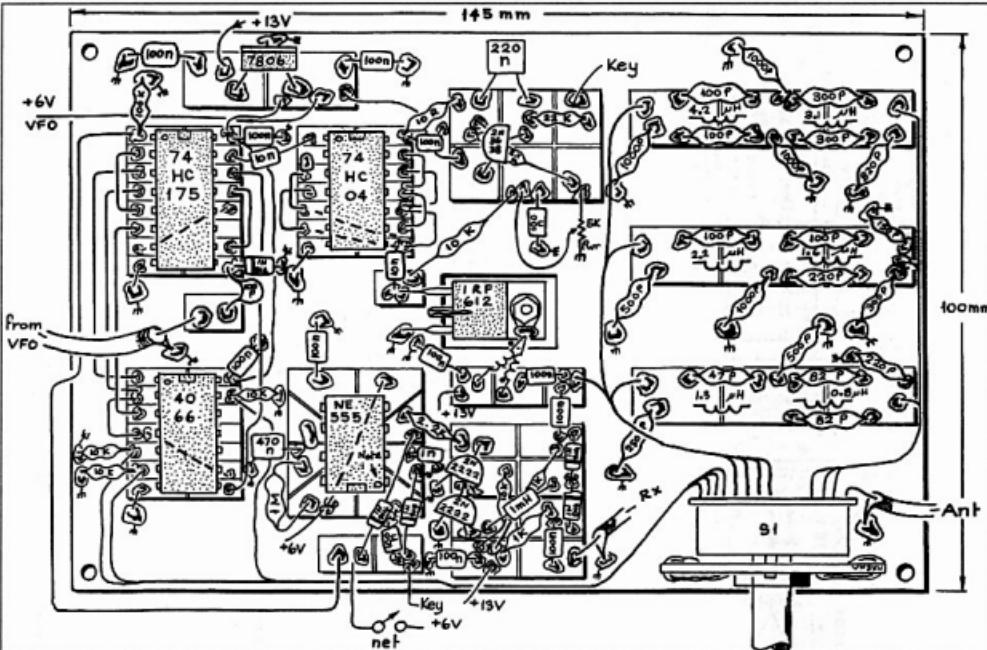


Figure 2: Layout of the components on the "paddyboard" circuit board.

The broadband drain to 50 ohm matching transformer T1 may be constructed as follows: Take two 300 mm lengths of 0.6 mm (or #22 B&S/0.63 mm) enamelled copper wire (ecw). Fix these together as a pair in your vice. Twist the free ends together and then clamp the pair in the chuck of a hand-drill. Whilst maintaining a tension on the pair, crank the drill until there are (about) three twists per cm. Give the drill a firm pull to "set" the twist. Carefully wind the pair on to a Jaycar LO 1230 or an Amidon FT50-43 toroidal ferrite core. The number of loops is not critical - about 10 or 11 fit nicely on either core. Snip the leads to provide tails of about 20 mm. Scrape the enamel from each lead, then, with your multimeter on ohms, identify the two windings. Connect the start (dot) of one winding to the finish of the other to form the drain connection.

Bandswitch S1 may be fitted upon a 40 mm H x 35 mm W rectangle of circuit board material, which is soldered at right angles upon the main board (visible in Photo 2). The VFO and buffer should be accommodated in an RF-tight box measuring 40 x 50 x 80 mm HWD made

from soldered-together single-sided circuit board, as pictured in Photo 3. A 3 mm brass nut may be soldered into each corner for affixing the lid. Brass or bronze shim metal "fingers" should be soldered to the box walls in four places to assure reliable electrical contact with the lid.

The variable capacitor may be any well-made part with a range about 3 - 15 pF (see Parts below). Mine is a Jackson (JB) 25 pF with two moving and two fixed plates removed. Ordinary "ugly" construction is quite suited to oscillator work and, provided that lead lengths are short and components are mounted rigidly, your oscillator should be remarkably stable.

The VFO coil is 22 turns of 0.6 mm ecw wound tightly upon a 30 mm length of common 7.9 mm diameter "Kilometrico" pen barrel. This material is easy to work and has been found, in numerous examples, to provide good mechanical stability and low loss for oscillator coil applications. Drill a 1 mm hole across the former's diameter in two places, as shown in Figure 1. The source tap (a twisted "pig-tail") is at five turns from the "earthy" end. The coil may be

fixed to the VFO board with a blob of hot-melt glue.

Your finished VFO assembly may be tested by applying +6 V dc to the unit. Hook a x10 probe/oscilloscope to the coax output signal. Tweak the 100 pF trim capacitor initially for maximum signal, which should be about 6 V p-p. Now connect the probe's BNC to a counter. With the cover on, adjust the 25 pF beehive so that 14.000 MHz is generated when the 15 pF variable cap is at full mesh. Check that the frequency rises to (about) 15 MHz when the 15 pF is at minimum mesh. Listen to the 14 MHz signal on an SSB receiver, tune for a beat note of ~1 kHz, and observe that the tone is quite constant, indicating that the VFO is satisfactorily stable.

Operation

Carefully inspect your wiring and soldering for quality, accuracy, and the absence of solder "bridges" between Vero tracks. Double check for correct polarity of all polarised devices, such as ICs, diodes, regulator, transistors, FETs, etc. Note that the NE555 is oriented differently. The transmitter should be

operated from a regulated power supply of (nominally) +13 V dc at up to 1 A.

Connect a suitably rated 50 ohm dummy load/power meter to the output. Turn the Pwr potentiometer to zero. If an oscilloscope is available, hook a x10 probe on to the gate of the IRF612. Upon key closure, observe a (perhaps raggedy) square-wave of about 6 V p-p. Re-adjust the 100 pF trim cap (at the drain of the second 2N5484) so that reliable operation of the divider occurs (that is, there is no "squegging"). Set the 5 k "Pwr" potentiometer to about half travel. Close the key, whereupon drain current (ID) should rise, and some power output should be indicated. Turn the Pwr pot from zero to fully clockwise. You should observe a smooth rise in output power, up to 5 W, perhaps a bit more on 1.8 and 3.5 MHz (where efficiency is rather good). Drain current should be about 0.7 A for 5 W output on 7 MHz. With the 'scope time-base at (say) 0.2 μ s/division, connect the probe to the output connector and observe a clean sine-wave signal of about 45 V p-p. Connect a 50 ohm termination to the RX connector. With the 'scope at greatest sensitivity

(say 5 mV/div), check that the T/R is working, in that little or no signal is present at the RX connector.

Verify CW keying - set the 'scope for ~10 ms/div and observe a nicely ramped keyed wave-shape, free of blips or spikes, and no trace of "back-wave". Some typical 'scope waveforms,

measured with an x10 probe, are shown on the circuit as an aid to any necessary troubleshooting.

Parts

All the ordinary components are available from our usual electronics suppliers, including Altronics, Electronic

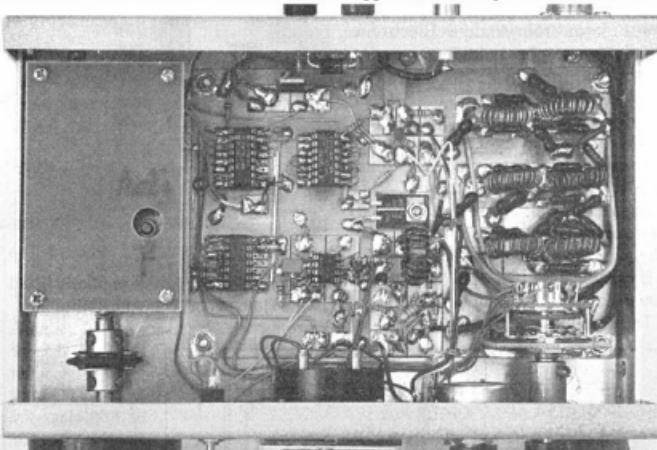


Photo 2 Internal view of the transmitter case showing component locations.

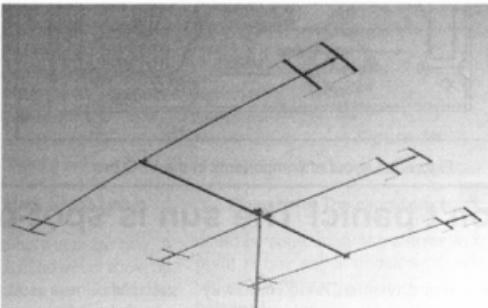
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FREQUENCY	14, 21, 28 MHz BAND
MAX.ELEMENT LENGTH	5520 mm
BOOM LENGTH	4.0 m
GAIN	6 / 6 / 7 dBi
FRONT TO BACK RATIO	20/ 15/ 14 dB
FEED IMPEDANCE	50 ohm
TURNING RADIUS	3.74 m
WEIGHT	12 kg
POWER RATING	2 kW PEP



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World, Jaycar, Rockby and Semtronics. Capacitors marked "10 n" and "100 n" are 50 V monolithic types. The capacitors marked "poly" should be MKT polyester types, > 50 V. The 100 pF VFO buffer trimmer is a Jaycar RV 5722.

For best efficiency and stability, capacitors marked "s.m." should be 100 V or 500 V silver mica. These may be mail-ordered from Antique Electronic Supply (www.tubesandmore.com). Do ask for their catalogue.

An IRF612 MOSFET, 1 nF feed-through capacitor, 74HC175, 25 pF "beehive" trim capacitor and many other parts may be purchased from Electronic World (03 9723 3860). 74HC175s (and much else) may be ordered from Semtronics (www.semtronics.com.au). Their 'phone number is 03 9873 3555.

Bandswitch S1 is a 4-pole, 3-position (one pole spare) Altronics S 3033.

The Amidon toroids may be ordered

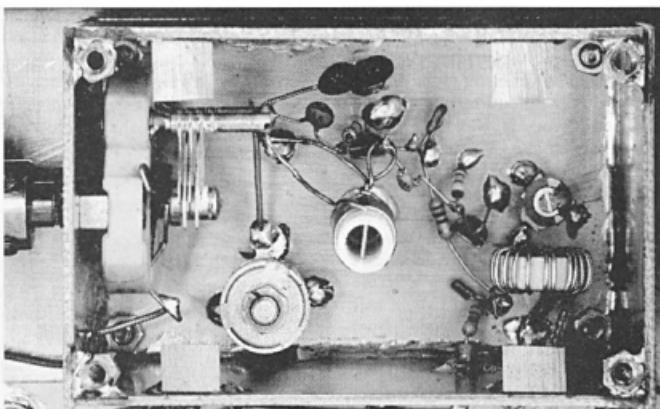


Photo 3: The VFO assembly.

from any of the suppliers regularly listed in the Hamads of Amateur Radio.

As mentioned, the 3 ~ 15 pF variable capacitor for the VFO must be first-class. An English "Jackson Bros" or "Polar" would be ideal. The trim capacitor should be an air dielectric type, such as a 25 or 30 pF Philips "beehive" (I am not in the parts business, but please contact the

writer by 'phone [03 9722 1620] or letter if you cannot find a suitable variable capacitor, or are held up by one or two other items).

References and Further Reading

1. "A 4-band QRP CW Transmitter with QSK T/R"; Lo-Key #66, June 2000 (Journal of the CW Operators' QRP Club).
2. Experimental Methods in RF Design; W Hayward et al.; ARRL, pp 2.31 ~ 2.37.
3. "Low-pass filters for solid-state linear amplifiers"; K Shubert WA0JYK, Ham Radio, March 1974.
4. "Paddyboard" Circuit Construction - Revised"; Amateur Radio, May 2005.

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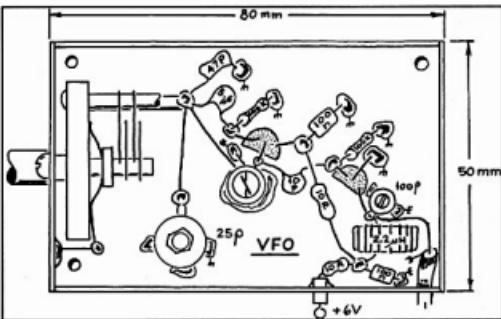


Figure 3: Layout of components in the VFO box.

Don't panic! The sun is spot-on

NASA solar physicist David Hathaway disagrees with the sunspot doomsayers. "There have been some reports lately that Solar Minimum is lasting longer than it should. Not so. The ongoing lull in sunspot number is well within historic norms for the solar cycle."

A careful look at the data suggests nothing odd is going on. "The sun is now near the low point of its 11-year activity cycle," says Hathaway. "This 'Solar Minimum' is the period of quiet that separates one Solar Max from another."

During Solar Max, huge sunspots and intense solar flares occur daily. Radiation storms knock out satellites, radio blackouts frustrate hams. The last

such 'Max' was around 2000-2001.

In Solar Minimums, Solar flares are almost non-existent while weeks go by, as now, without a single, tiny sunspot.

To questions about the 3 years of the ongoing minimum, Hathaway says, "In the early 20th century there were periods of quiet almost twice as long as now."

Hathaway has analysed data back to 1749 and says: "The average period of these solar cycles is 131 months with a standard deviation (SD) of 14 months. Current, decaying solar cycle 23 has lasted 142 months, well within the first SD and not at all abnormal."

The Maunder Minimum of 1645-1715, lasted an incredible 70 years

Dr. Tony Phillips Science@NASA
science.nasa.gov/headlines/y2008/11jul_solarcycleupdate.htm

and coincided with the Little Ice Age, with extraordinarily bitter winters in the northern hemisphere. Many think that low solar activity, plus increased volcanism and changes in ocean current patterns played a role in this event.

From early 18th century sunspot activity has had the familiar 11-year period.

But solar physicists are always on the look-out for signs that Maunder might come again.

"Not this time", says Hathaway. "We have already observed a few sunspots from the next solar cycle," predicting a return to Solar Max around 2012.

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Further reflections on A wideband return loss bridge

Paul McMahon VK3DIP

Since my article on a Return Loss Bridge appeared in AR, a number of people have contacted me with questions, comments, and the results of tests on their versions of the RLB. This article is a summary of these plus some additional work I have done on subsequent versions of the RLB. Also included are the results of some tests done on my prototypes using somewhat better quality test equipment than previously used.

The Balun

The vast majority of the questions I have been asked boil down to a request for more details of the Balun; how does it work, why four cores, should I (or can I) use more, less, why does it even need a Balun etc. The following is my description of the balun and how it works; I am sure this is not the only way this could be explained but hopefully this will give a better idea of why I built it the way I did.

Figure 1 reproduces the circuit from the original article (a), along with a simplified version of the circuit (b) that is the effective result if the Balun is ideal. As an aside, you may note that the circuit at (b) is effectively that of a 50 ohm resistive 6 dB splitter, and shares many of the characteristics of such a device.

The function of the Balun then is to transform the 50 ohm unbalanced input impedance of the detector (that is, one side of the real detector input is earthed), to a balanced, effectively floating (that is, neither side of the transformed detector input is earthed), 50 ohm impedance between the two Z connectors.

In the ideal Balun case, the impedance presented will be exactly 50 ohms and the detector will be exactly balanced. Minor divergence from this effective 50 ohm presented will only result in corresponding minor mismatches and losses. However even minor amounts of residual unbalance will result in the detected signal not correctly representing differences between the Z Unknown and Z Reference ports. For example, if the effective resistance presented was 40 ohms instead of 50, then, apart from a 20 dB return loss, so long as things are balanced, a null on the detector would still indicate that the Unknown and Reference were equal, and a peak would indicate

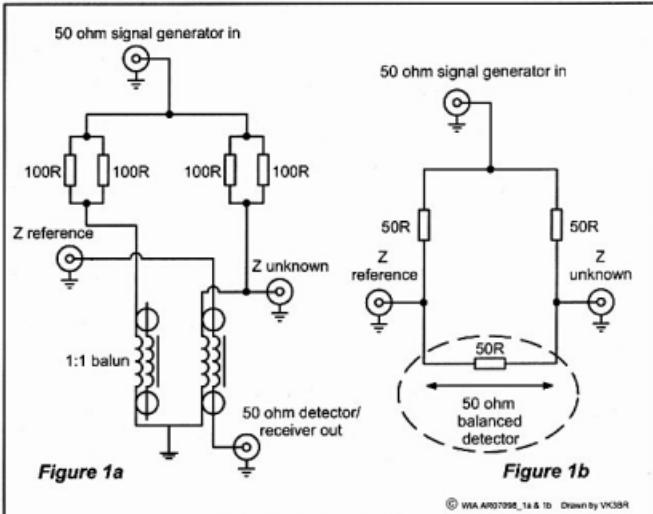


Figure 1 (a) The Mark 1 RLB circuit.

Figure 1 (b) The simplified circuit.

maximal difference between the two. A problem in balance will however show up as the detector indicating a null when the Reference does not equal the Unknown.

So what do balanced and unbalanced mean? In simple terms for a two terminal source or load, unbalanced means that one terminal is connected to earth, or at earth potential (a virtual earth), in the balanced case both terminals are not earthed but have symmetrical mirror images of each other about earth (or virtual earth). With AC or RF, in the unbalanced case the earthed terminal is always at zero volts while the other varies about zero to some positive or negative value with respect to earth. In the balanced case, the terminals will have potentials of equal magnitude but opposite sign. A physical analogy

could be something like a lever with the pivot at one end is unbalanced, while a see-saw with the pivot in the middle is balanced.

We can see this in Figure 2. (Note that while for simplicity I have shown a hard earth, the same is true with a virtual earth which has no actual connection to physical earth.)

Here, in both cases, a source of output impedance R feeds a load of impedance $Z_0 = R$ via a transmission line of impedance $Z_0 = R$. Having the values of R the same is for matching and power transfer not balancing purposes. In the balanced case the value of R is effectively split in two either side of earth and that the equality of these values is what affects the balance. Put another way, the closer the

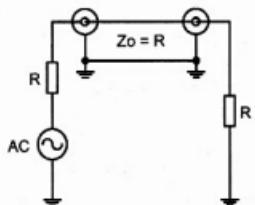


Figure 2a - Unbalanced

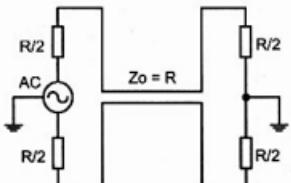


Figure 2b - Balanced

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Figure 2. The Unbalanced and Balanced cases.

earth (or virtual earth) is to the middle, the better is the balance.

To understand the operation of this Balun, we also need to look at coaxial transmission lines. In the normal, and desired, mode of operation, RF energy flows only in the inside of the coax, that is, in the area between the outside of the inner conductor and the inside of the outer conductor/braid. In this case, the outside of the outer braid is actually at earth potential. This normal circumstance is enforced usually by the outer braid being physically connected to earth at both ends of the cable and sometimes along its length. In normal use, one connects a 50 ohm unbalanced source (a transceiver, say) to a nominally 50 ohm unbalanced load (a properly tuned Yagi with a gamma match say) via 50 ohm Coax.

Figure 3 shows what happens when we just connect up to a balanced load using intrinsically unbalanced coax.

We can see from Figure 3(a) that everything looks OK except for the fact that at point A the outer braid of the coax is effectively shorting out the lower of the two $R/2$ resistors in the load. Understanding what is happening here

can be a bit difficult at first and perhaps it helps to think of this as being a bit like a garden hose with the water flowing down the inside which is good, but something is not quite right at the nozzle end and water is running back down the outside of the hose. A similar thing is happening with the coax here, the RF power is flowing down the inside of the coax and because of the imbalance some is flowing back down the low impedance path formed by the outer of the coax which is connected to earth at the source end.

Note: This current flowing on the outside of the coax is not a reflection or a standing wave. All of that happens inside the coax.

The effect is perhaps simpler to understand in Figure 3(b), where the impedance of the outer of the coax is shown explicitly (as Z_b) separately to the transmission line. Normally then, unless we have done something special to make the impedance of the outside of the braid (that is, Z_b) high, just connecting up an unbalanced bit of coax to a balanced load is not a good thing.

Of course lots of people do just this with wire dipoles and other antennas, but

in this case there is usually a long bit of coax involved which in itself increases the inductance of the outer braid. In addition the current on the outside of the coax will radiate (or receive) also, so the main effect will be on radiation patterns.

As an aside, in the antenna case with, for example, a dipole where there is no hard earth centre connection and there is only a virtual earth, the net effect, apart from sharing the current between the antenna and outside of the coax, is to effectively move the virtual earth point along the dipole away from the centre of the antenna. Both the current on the outer of the coax and the movement of the virtual centre point will distort the antenna pattern.

One way to make this piece of coax into a balun is to increase Z_b without otherwise interfering with the flow of power. This sort of balun is called a choke or current mode balun because we are dealing with the flow of currents and effectively turning the outer of the coax into an RF choke.

We can do this several ways:

- We can wind the coax into a simple coil and thus increase the effective inductance of the outer without affecting the other properties of the coax. This works best at higher frequencies as the impedance of a set value of inductance increases with frequency.
- We can increase the inductance of this coil by winding it on, or surrounding it with, some sort of ferromagnetic material.
- We can use an appropriate ferrite material that will add a resistive component as well as increasing the inductance. This is fine here, where we are not using too much power, but be careful in a transmitting case where this resistance may dissipate some power and get hot. If a ferrite gets too hot it loses its ferrite properties.

Some form of quarter wave shorted stub or sleeve can be added over the coax, though this is obviously more for a single frequency.

Note: there are other ways of making baluns, such as using transformers, which are not covered here.

What we cannot do is just add a resistor in series, as that would end up being in both the inner and outer paths.

The approach taken with the RLB here

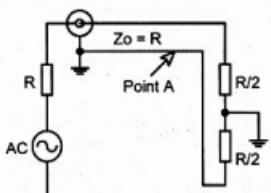


Figure 3a - Unbalanced to balanced

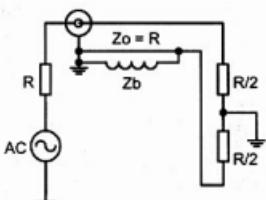


Figure 3b - Equivalent circuit

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Figure 3. Connecting an Unbalanced source to Balanced load with some Coax.

then is option 3 above; the only hard thing is finding an appropriate ferrite that will work over the frequency range of interest. In my case the simplest way to get this ferrite was in the form of the two-hole balun formers intended for TV frequencies which cover most of the range we are interested in.

The nature of this ferrite is that the inductance of the windings has the main effect at lower frequencies, while at higher frequencies the effective resistance will predominate. The problem with this at the extremes is that at the lower frequencies we need very high inductances to get high impedances, while at the higher frequencies the resistive component tails off unless we have some very exotic ferrite.

So even if we manage to get a reasonably high value of impedance within a band of frequencies, at the edges things get less than perfect, that is, the shunt impedance across one half of the load (Z_b) will drop which will in turn effectively lower the value of this half of the load.

This is where the idea that balance is more important than matching comes in. The simplest way to maintain this balance at the extremes is to also shunt the other side of the load with the exact same value (that is, equal to Z_b). See Figure 4.

In Figure 4(a), the second Zb is seen added across the other half of the load. To make sure these two Zbs are as close to the same value as possible, no matter at what frequency, we make the second Zb by duplicating as close as possible the winding that we have for the main coax line using the same sort of wire (that is, coax) even though in this case only the outer matters which is why we do not have any connection to the second coax inner.

The net effect of this is to get us to Figure 4(b), where we see that even if Z_b starts to shunt one side of the detector, the other side will be equally shunted maintaining the balance, thus only the match (and of course losses) will suffer not the balance, so we will still correctly show when Z Reference equals Z Unknown etc.

There are a couple of other factors that need to be considered in order to maximise the effectiveness of the balun operation.

Firstly we need to maximise the

Figure 4. The effect of a balancing impedance

inductance to get the balun to work well at low frequencies which means winding lots of turns, or using large bits of ferrite.

The problem with large numbers of turns is that this tends to increase leakage capacitance between those turns, which directly counteracts the effect of the extra inductance. This particularly affects working at higher frequencies, that is, we can make the balun work better down low by compromising at the high end, and the opposite is also true.

Secondly it can be very difficult to wind exactly the same coil twice and end up with exactly the same values of inductance as, for example, two supposedly identical ferrite cores can have slightly different attributes.

To try and address these two items in my RLB Balun, I used the configuration I did, that is, just one turn (or a half depending how you count it) to minimize capacitance and lots of ferrite with each individual ferrite core used half and half for the main and the balancing line. You can refer to the original article for further details of this.

The down side of this approach is that just the single turn even with four cores does not give much inductance and thus limits the impedance at the low end. In the case of the original prototype I stuck with the four cores that fitted easily in the box I had.

Possible improvements – not just to the balun

Several people who have made versions of this RLB have suggested improvements and I also have been lucky to have had some tests done on a couple of prototypes with some very expensive and thus theoretically very good test equipment.

1. Add more cores. A general rule of thumb seems to be the more ferrite the better. I have now built versions with up to 9 cores with improvements being seen particularly at lower frequencies.
2. Use N connectors instead of BNCs. This can be an almost religious thing with some people but from my tests with this RLB, Ns seem to be better especially at the high end.
3. Use as good a quality coax as you can find for the balun.
4. Try and get the transitions from connector to coax or resistor as smooth and as constant an impedance as possible. This means things like using special panel N or BNC connectors that are more like line connectors, and/or PCB microstrip line.
5. Get (or effectively make) some better ferrite. It is very difficult to find one ferrite material that has both high permittivity for high

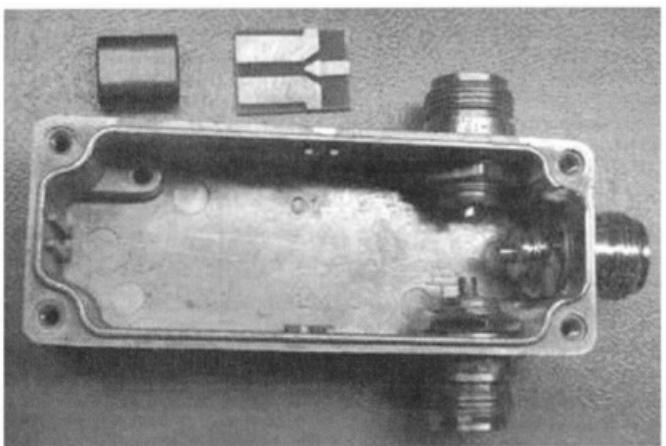


Photo 1. The box after fitting the N connectors, also the piece of microstrip (that is, PCB).

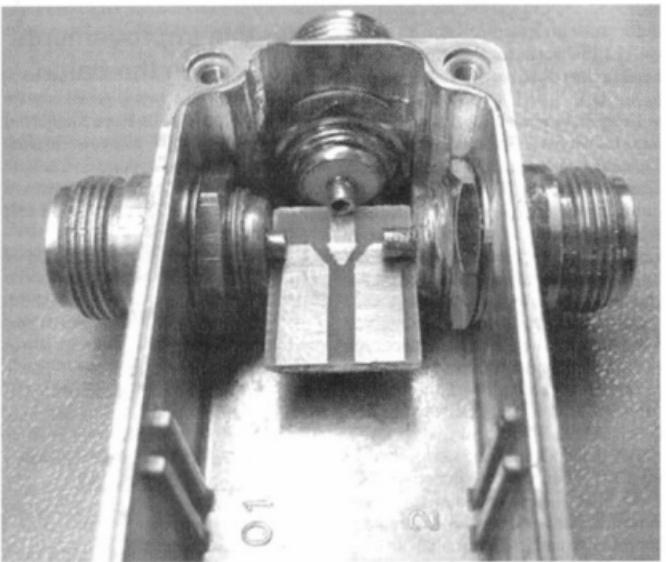


Photo 2. Close up of the connectors and the PCB.

inductance down low, coupled with high effective resistance up into the GHz.

An alternative to this is to use a mixture of different ferrite cores that span the range of interest, that is, it is quite possible to find some cores that have a higher permittivity that will work better down low, and some other cores that have higher effective

resistance for up high and just use both types together. If you do, be sure to put the lower frequency cores at the connector end working up to the higher frequency ones at the end going to the resistors in the bridge. Doing this optimises the high frequency response.

6. Use the best 50 ohm terminations you can. I have found that three

150 ohm surface mount resistors in parallel (or alternately six by 75 ohm in series-parallel) spaced at roughly 120 degrees around the end of an N panel plug works well. See later for details.

7. Unless you happen to know that the resistors you are using are specially made for microwave work, use as physically small a surface mount resistor/s as you can find.

Preferably a single 50 ohms (49.9 ohm is the closest standard value) mounted face down for each arm of the bridge. Face down supposedly gives you a shorter lead length. Also with respect to the size, there is a school of thought that says it is better to have the width of the resistor equal to the width of the conductor or track it is connecting to. This nominally makes the stray capacitance and inductance of the resistor the same as the conductor or track.

An improved version of the RLB

Taking a number of the ideas from the above I have made a number of improved versions of the RLB in the same sized box, and bigger. The one described here performs quite a bit better than the initial one, while the bits to make it are still reasonably readily available.

The major changes are; N connectors instead of BNC, nine cores instead of four, and a microstripline version of the small bit of PCB connecting it all. The circuit for this improved version of the bridge is basically identical to before and the best way to see how some of these things went in is to look at the following photos.

In Photo 1 and 2 you can see the small bit of PCB I used which was about one cm square sized to fit exactly between the connectors in the box.

It was made from normal double sided fibreglass board with three nominally 50 ohm strip-line arms going to the three N connectors which are the thinner lines you can see and two fatter lines which are nominally 25 ohms each (two unbalanced 25 ohms are equivalent to one balanced 50 ohms) for connection to the balun output.

In my case I made the board by covering both sides with tape and cutting

away the tape covering on the top side as required before etching. I have not given a definitive board pattern here as this will depend very much on what sort of board is used and the exact physical

versions of this bridge have made their own case either out of PCB or in one case milled brass, this gives a lot more flexibility with respect to fitting things in, with the size and arms on the PCB just extended as required.

For this version the balun configuration I used was as shown in Photo 3 and 4. I taped three balun cores together as a stick and then assembled three sticks together to form effectively a single large six hole core held together with hot melt glue. The coax (again RG316 in this case) is wound through the holes as shown in the photos.

Also in Photo 3 you will see the panel mount N connector I used and how the outer of the extra bit of coax (that is, the braid only) is soldered to the side of the connector where the main RG316 line exits. Note that it is important to get the coax as close as possible to the cores with minimum air gaps.

Photo 5 shows the ends of the coax from the balun soldered on the board. Note the short section of coax inner from the main line on the left connecting to the other side braid and N connector inner.

On the right hand side there is a small piece of brass shim soldered on the board which can be bent backwards and forwards to slightly increase the C on one side of the bridge.

At least one person who has made a version of the RLB has found that this can be beneficial in balancing out remaining minor differences between the sides especially if the standard (that is, 50 ohm termination) or bridge resistors

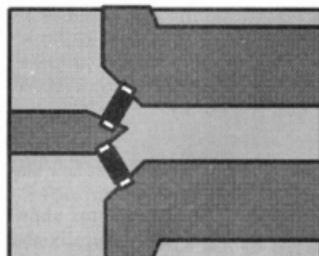


Figure 5. PCB showing resistor placement.

layout of the bridge.

In my case for the board I had, I calculated the line widths from some formulas in an old RSGB VHF/UHF handbook, at about 2.5 mm wide for 50 ohms and 7 mm for the 25 ohms. In my case I had to make the wider lines a bit thinner than 7 mm just to fit in the box, but this does not seem to have made too much difference.

It is very important that the ground plane (that is, the un-etched underneath) of the PCB must make good contact with the earth rims of the N connectors thus the need to size the PCB to make a good tight fit between the connectors.

On the PCB the two nominal 50 ohm resistors (either 2 by 100 ohms in parallel as in version 1 or a single 49.9 ohm which I used for this version) are mounted face down at the intersection of the three arms as indicated in Figure 5.

Note also in Photo 1 and 2 how the three N connectors are mounted. I realised afterwards it would have been a lot simpler to tap (that is, thread) the holes in the case and then just screw the connectors in, rather than as shown in the photos where I had quite a bit of trouble trying to make room to fit the nuts on the connectors.

You will also see I shortened the solder leads on the connectors slightly to fit the PCB better. If you want to use the same case as I used here and in the original version, they are available from Electus Distribution, the parent/wholesale arm of Jaycar, as part number HB-5026.

A number of people who have made

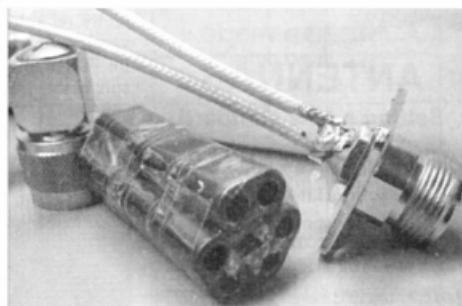


Photo 3. The nine cores and the coax on the connector.

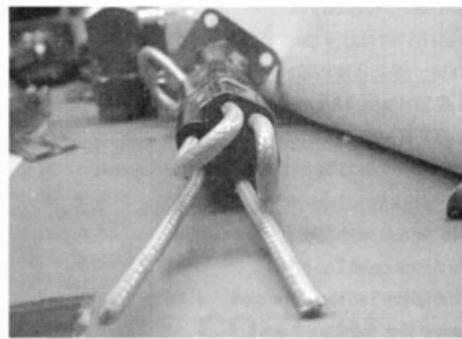


Photo 4. Close up of the coax on the cores.

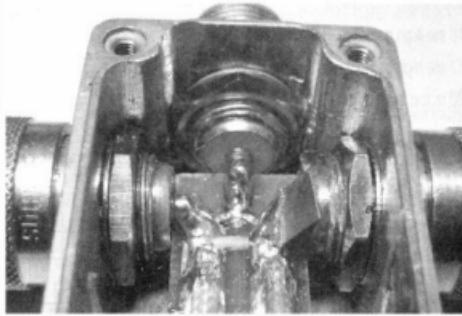


Photo 5. All wired up.

used are less than perfect.

In my case the shim did make a small difference but as it had to be basically adjusted to suit a particular termination and as I wanted to use a number of different terminations I ended up removing it.

The measured performance of this version of the bridge is shown in Figure 6. These tests were done with commercial equipment and should be

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pretty reliable. You can see that this version of the bridge is quite good for 70 cm and below and is probably still usable quite a bit higher given a suitable 50 ohm standard or reference termination.

Yet another version of the bridge

While I am more than happy with the Mark II RLB, I happened to pick up at a Hamvention cheaply a number of female N chassis connectors with short lengths of semi-ridged coax fitted (RG401), so I thought I would try them out as an alternative. The following photos give some idea of how this worked out.

The photos show I used basically the mark II balun with the addition of three toroids that are rated to provide good effective resistance at 1 GHz.

Because the parts for the Mark III are not readily available I do not expect anyone else to be making one of these so only the minimum detail on construction is provided here.

An interesting thing seen in the overall

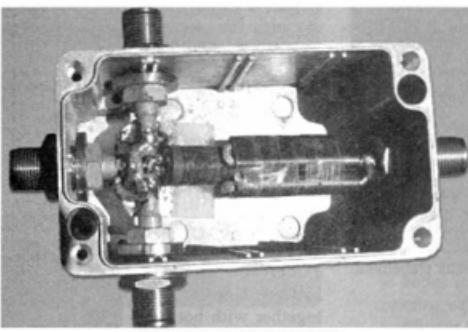


Photo 6. The Mark III RLB.

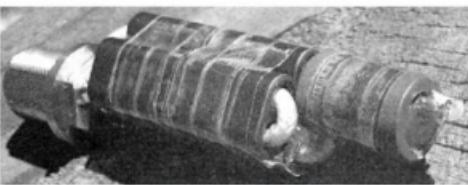


Photo 7. The Mark III RLB balun.

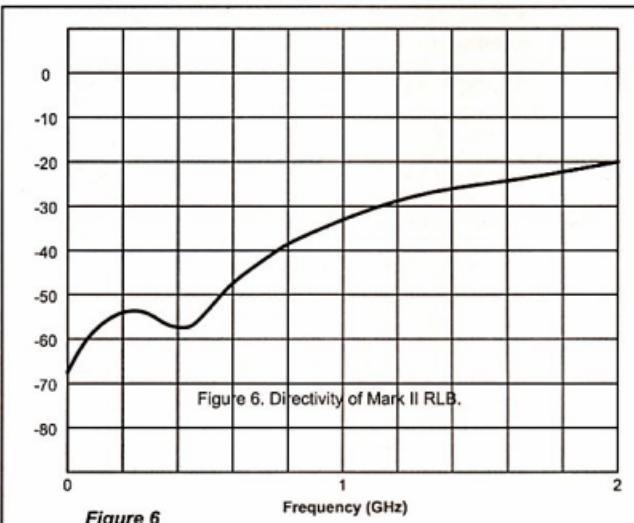


Figure 6. Directivity of Mark II RLB.



Photo 8. Close-up of connections.

directivity of the Mark III shown in Figure 7. We can see significant improvement at and above 1 GHz, yet the area below say 500 MHz is actually not as good.

This confirms my earlier statement that improving things at the high end often makes the low end worse.

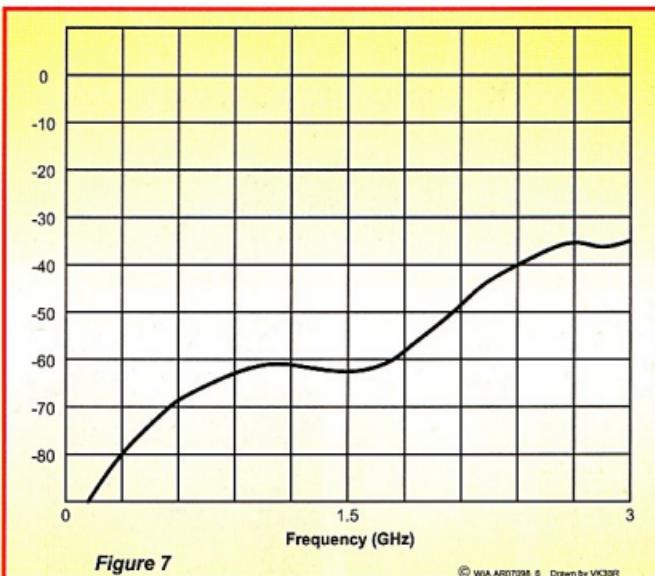


Figure 7

© WIA ARD7098-5 Drawn by VAC3R

Figure 7. Measured Directivity of the Mark III bridge.



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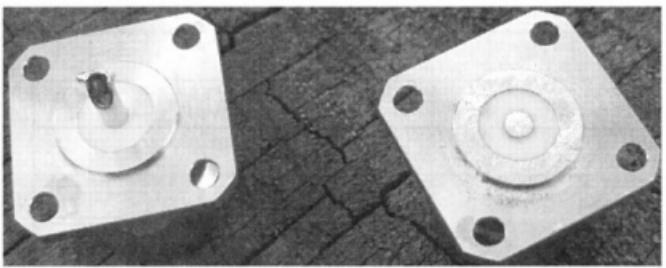


Photo 9. The panel mount connector, before and after modification.

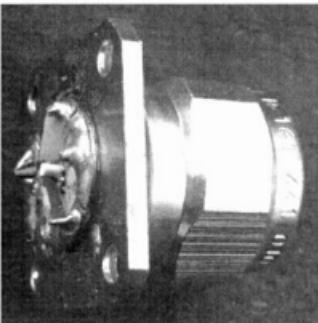


Photo 10. 3 by 150 ohm 7225 size.

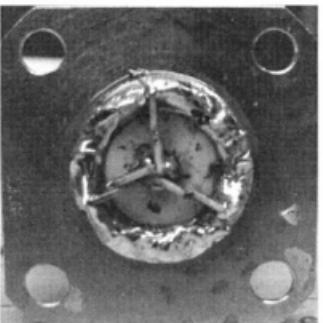


Photo 11. 6 by 75 ohm 1206 size.

A 'Good' Terminator

The key I have found to getting good performance from these RLBs is to have as good a reference 50 ohm terminator as possible. If you do not have a suitable terminator, the best I have managed to make so far is shown in the following photos.

I start with a good quality N solder tag panel mount connector. If you cannot find the panel mount male I used then the female with a male/male adaptor would be nearly as good.

As seen in Photo 9, I first modify the connector by sawing off the gold coloured centre solder tag flush with the body, and with a file both smooth this out and remove the surface plating on the ring around the outside of the dielectric to aid soldering.

Photos 10 and 11 show two versions of the terminator: one using three 150 ohm larger (7225) surface mount resistors, and the other with six 75 ohm smaller (1206) resistors. In both cases the resistors are mounted at about 120 degree spacing around the centre pin.

Using at least the three resistors seems to work significantly better than just one 49.9 or two 100 ohm resistors.

Note the resistors are mounted on edge to increase cooling efficiency in case of short power overloads. The larger SM 3 by 150 is a nominal 1.8 watt terminator while the 6 by 75 version is a nominal 0.75 W device.

The measured performance of the 6 by 75 ohm version is shown in Figure 8. This is for just the device as shown in Photo 11 with a small homemade metal box screwed on via the panel mounting holes to protect the resistors.

The response of the 6 by 75 ohm version is given here, despite being the more difficult to build, because it should be easier to obtain the 75 ohm 1206 resistors, and because it actually had the better performance.

It is also possible to improve this response if a small amount of variable C, such as a small piece of shim brass, is added from the centre pin to deck and tweaking it a bit.

Adjusting this without access to either (calibrated) commercial measurement gear or a known excellent termination is problematic; however the bare version is easily good enough for either the Mark II or Mark III bridge.

Figure 8

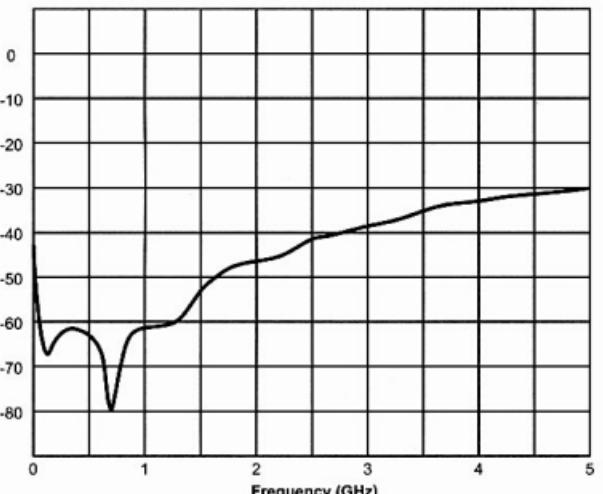


Figure 8. 6 by 75 ohm termination measured return loss.

© VNA AR8700B Drawn by VK3BR

WIA Comment

continued from page 3

the WIA and the ACMA principles will not be varied.

Persons moving interstate

There is however, one aspect of eligibility to participate in a ballot for two letter callsigns that did emerge from the submissions and was considered by the WIA to be an issue that should be addressed.

That is the position of amateurs who had two letter callsigns and through work or family circumstances have transferred to another state and were subsequently refused a two-letter call by the ACMA.

The situation of some amateurs holding a two letter callsign who have transferred to another state has had some unforeseen consequences. A number of those affected by the refusal of ACMA of a replacement two letter callsign in their new state of residence, continue to use their existing callsign in a portable capacity beyond the four month continuous period for portable operation as required in section 10 of the Radiocommunications Licence Conditions (Amateur Licence) Determination No.1 of 1997 (LCD) and therefore be potentially in breach of this requirement.

The WIA recommended to ACMA that amateurs affected by interstate transfer should be allowed to enter the ballot even if they already hold a two letter callsign in another state but subject to all the other requirements such as relinquishing their existing two letter callsign if they are successful and accept a new two letter callsign on same basis as other applicants.

ACMA rejected the WIA's recommendation, taking the view that such an approach was inconsistent with the principles it had set.

Who is excluded?

The Paper included the following (omitting parts not relevant): "Any person who is not a person who is, or in the past two years has been, or is currently elected to be or is appointed to be a director, officer or employee of the WIA or the spouse or partner of any such a person, is eligible to participate in the Ballot for the state or territory in which the person resides."

Some understood the term "officer" to

include any volunteer undertaking any task for the WIA.

The term "officer" was intended to be used in the Corporations Act 2001 sense, where by section 9 "officer of a corporation" is defined to include a person "who makes, or participates in making, decisions that affect the whole, or a substantial part, of the business of the corporation; or who has the capacity to affect significantly the corporation's financial standing", though this was not made clear.

A number of persons making submissions have indicated that they see no reason for any restriction at all.

We have decided to retain the restriction, expressing it to apply to specified positions and so making it clear that it is not intended to apply to the many volunteers who undertake tasks for the WIA, including WIA Assessors, on the basis that this was a one-off event and it is better to err on the side of caution, particularly given that some submissions expressed a concern that WIA members would be favoured, notwithstanding the process proposed.

Acknowledgement

We again thank all who made a submission.

We appreciate the supportive comments made in so many submissions, and assure all concerned that the ballot will be conducted completely fairly without any favour for any person. Hence the elaborate process proposed in the Paper."

We then provided a summary of the issues identified in the comments received other than on the issues of Morse Code and Seniority:

- End of hoarding two letter callsigns;
- allow interstate transfers;
- annual fee for callsign;
- issue to members of affiliated clubs only;
- no commercial companies
- Australian citizens only;
- no multi-callsigns;
- for ability to retention of old callsign;

- allocation of lost callsign;
- scrap two letter callsigns altogether;
- one application only;
- hand the callsign issue back to ACMA to sort out;
- only to original Full calls;
- longer time period before issuing deceased callsigns;
- callsigns should be portable across states;
- WIA needs to state eligibility of non-members;
- do away with deceased amateur freeze;
- establish seniority list; do away with transfer of callsigns;
- allow existing two letter callsign holders to relinquish existing call and be eligible to enter ballot;
- withdraw two letter callsigns held by non-advanced licensee over time;
- allow existing interstater with two letter callsigns to be eligible to go in ballot;
- do not allow existing two letter callsign holders to be eligible;
- shortage of two letter callsigns is not supported by the facts;
- allow for holders of two letter callsigns who transfer interstate to be eligible;
- return to previous application arrangements;
- do not see why WIA is involved – job of ACMA to issue callsigns;
- paper did not state privacy principles, appeal process under ADJR and FOI processes;
- two letter callsigns should not become elitist symbols;
- WIA volunteers should be eligible;
- seems the WIA has already agreed – disgusted;

continued on page 21

An essential piece of equipment every home-brewer must have: an RF probe

Grant McDuling VK4JAZ

It is bad enough when you have been afflicted with the amateur radio bug, but when you have a chronic dose of home-brewing sickness and choose to persist with the QRP strain of the virus, life can get pretty interesting.

The past few years have seen the list of 'must build' projects grow in my shack due largely to a dearth of QRP contacts. I am really talking about QRPs here, I should point out, because my particular strain of the amateur virus happens to be extremely weak signals. To give you an idea of what I mean, my most powerful rig at present (excluding the obligatory 2 m/70 cm base rig that saved my sanity during the quiet time of the last solar cycle) pushes out all of one watt. All the others can just manage half that on a good day with a tail wind.

A few months ago a nifty little kit that is produced and sold by that guru of the QRP world, Doug Hendricks (<http://www.qrpkits.com/>) caught my eye. It is known as the DC40A transceiver and is a remarkably sophisticated rig for only US\$40. And I really started salivating when I read that this little beauty was designed by Steve Weber KD1JV, who is a member of the QRP Hall of Fame. I just had to have one and, with weakened knees, placed my order.

Days later I received this nifty little parcel in the post and I was back in business, melting solder to my heart's content. I worked my way diligently through the excellent set of instructions as all good constructors do and performed the smoke tests at the appropriate times. So far so good, until it came time to check to see if there was actually any RF getting out. It was time

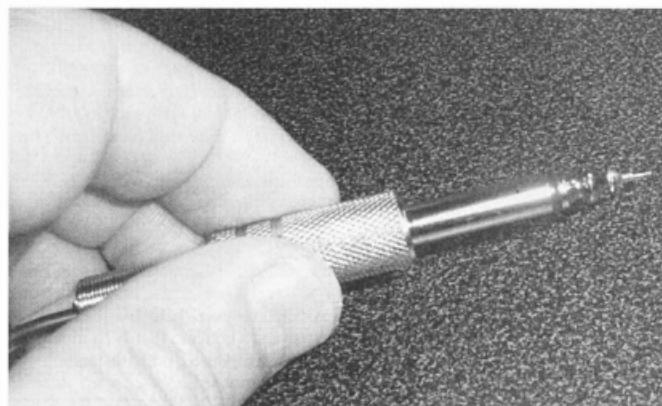


Photo 1. The finished RF probe.

for the final smoke test; the proof of the pudding as it were.

So I hooked up the dummy load, power supply, head phones, key and SWR/watt meter and held my breath as I keyed up for the first time.

Nothing.

Not a sausage.

Curse, I muttered (to myself, of course; the rest of the McDuling household think I am nuts and simply do not understand).

So I flipped over to the section in the instructions called Trouble Shooting Guide. I switched on my trusty DMM and proceeded to take readings at the relevant points on the PCB. All seemed OK, but still no RF output. So it must be one of the three pesky toroids, I thought, and proceeded to extract them for rewinding just to make sure. This proved inconclusive, so I put out a call on 2 m to Ray, VK4ZW, who is more handy than I am technically – he does this sort of thing for a living. See, I told you the 2 m/70 cm rig is for life or death situations! Anyway, Ray agreed to cast

his expert eye over the rig for me to see if I had perhaps missed something.

After a week or so, he made contact (again on 2 m) and said that all the tests he carried out were positive and to really get a handle on what was going on, we would need a cathode ray oscilloscope, which neither of us owned.

This called for drastic action, so I put out a call for help on the internet and received some advice from Chuck Carpenter W5USJ, another absolute guru and a gentleman to boot. Chuck told me that what I should do next was to test the FET in the final stage, which happened to be a 2N7000.

This rang a bell, because it was what Ray wanted tested. I then contacted John VK4TJ, this time on 70 cm, and asked if he had an oscilloscope. He replied that I should first build myself an RF probe and then take input and output readings from the FET in question.

Great, I thought, another homebrew project to add to my growing list. Well, I reasoned, at least this one would be dead simple to make and it would help me

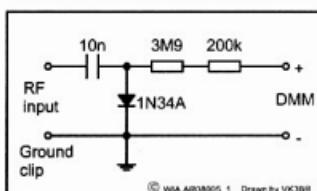


Figure 1 The schematic of the RF probe.

to complete the DC40A. So I set about sourcing parts for the project.

I soon discovered that the reason I needed to use an RF probe to take readings of the input and output of the FET was because most voltmeters will not read AC signals with a frequency above 10 kHz. I also learned that most common schematics for RF probes assume the DMM you will be using has an input impedance of 11 Megohms and not 10 like the ones commonly available today. This is where Chuck Carpenter came back into the picture. He sent me the details of an RF probe he made to correct for this. Instead of using a 4.7 Meg resistor, he said I should use two in series; a 3.9 Meg resistor and a 220 K resistor.

I chose to mount my RF probe inside the casing of a \$1.29 nickel 6.35 mm phono plug, to which I soldered a machined DIP pin contact. The result was brilliant.

Once this little project was complete, I hooked it up to my DMM and tested the FET in question. Bingo! I read 0.4 on the drain, 2.24 on the gate and 0 on the source. This looked like the culprit.

I did not have to think too hard to convince myself. As I watched, the FET burst into flames and began spewing a strong fire stream like a miniature flame thrower. Mesmerised, I watched and wished I had my camera handy. The fireworks would have made a great talking point among the QRP fraternity.

So now it just remained for me to extract the FET and install a new one. Chuck posted me two and within days my latest little rig had passed its final smoke test. A quick adjustment of the winding on two toroids and I was pleased to note a good one watt of power being recorded on my wattmeter as I keyed down.

Then came the big test; a QSO. I got onto my 2 m rig and arranged a sked with Ray VK4ZW and within minutes I was hearing the sweet sound of CW in my earphones. It worked!

I then craved for more. So I started pounding CQ and was astounded when Drew Diamond VK3XU answered. He gave me a good 539 to boot. Well, this was satisfying, especially when I computed that he was all of 1,342 km from my shack as the crow flies.

Now for some DX!

WIA Comment

continued from page 19

- concerned about my eligibility as WIA volunteer?
- applicants need to establish an association with and justification for a particular callsign;
- feel that am being discriminated against because of my age and WIA/ACMA should follow up if licence not renewed on time and allow further time to do so;
- provision must be made for long term amateurs with two letter calls to be able to retain a two letter call upon permanent transfer interstate;
- ballot should be dropped; if not a member of the WIA you would have no chance in getting a two letter callsign;
- if moving interstate should be able to get a two letter callsign in that state; concerned about eligibility of WIA volunteers;
- NCRC wishes to reserve call sign and forego existing two letter callsign;
- should only allow one call per person not 4-5 like some have and one in every state;
- should be able to change the two letter callsign for a two letter callsign in the state they are moving to, without having to go into a ballot;
- existing three letter F calls should be offered another three letter call to give more iteration between foundation and advanced callsigns;
- WIA volunteers should be eligible for ballot and those existing two letter callsigns that transfer interstate should be allowed to enter;
- Interstate transfers should automatically be given replacement two letter call, and WIA officials are excluded – this is rubbish;
- If first and second preferences already assigned then should be able to retain existing call – WIA officials being excluded from the draw is unwarranted;
- Allow two letter callsigns to be used anywhere in Australia regardless of the State in which resident;
- Allow existing two letter callsign holder to enter ballot to swap callsign, but retain if unsuccessful;
- Allow incorporated bodies to apply for callsign on behalf of clubs;
- Two letter callsigns should only be given to active amateurs;
- amateurs who fail to renew their callsign should be able to apply and have it back, if available, to not do so would be mean spirited;
- believe the issue of exclusion of WIA officers should be reconsidered, surely a public and/or fully audited ballot should satisfy everyone;
- holders of calls who neglected to renew them would have to supply compelling excuses for not renewing their licences – this is unfair and unreasonable;
- What happens in the future? Is it going to be Ballots every time you want a two letter callsign?
- Is there going to be a cost every time you want to take place in a ballot, even if you were not successful the first time?
- If there is an abundance of two letter callsigns in certain states (like Tasmania, for instance) will we be able to apply normally for a two letter callsign, if we qualify for that two letter callsign?
- WIA and ACMA to consider the adoption of the addition of a one letter callsign to expand the two, three and four letter callsign policy.

DXing from the Mighty Mo

Bruce R Kendall VK3WL/9V1WL

In 2007 our eldest daughter Kristy shelved plans to marry her then fiancé Michael at a winery in the Pyrenees district of western Victoria in favour of a beach wedding in Hawaii. A childhood dream was about to become an organising challenge, arranging the event via a wedding planner coupled with copious web based research for all manner of things ranging from accommodation and airfares, to the wedding planner, all via remote control from Ballarat and Ballan. Google wedding planner Hawaii and see how many listings you get!

I figured as we would be holidaying in addition to being part of the nuptials, I might as well take a hand held 2 m/70 cm rig with me to have a chat with some of the locals. Local knowledge can be very valuable. I emailed one of the amateur radio clubs in Honolulu, on the island of Oahu, that elicited several responses. Someone posted my email on a Hawaiian amateur radio WWW reflector, and the emails offering help and suggestions started to roll in tsunami style.

One came from Bill VE7ISV suggesting that I book a guest operating spot at amateur radio station KH6BB, as he had previously done, on-board the USS Missouri BB-63 (www.kh6bb.org) moored in Battleship Row, Ford Island, Pearl Harbour. The Missouri, known as 'Mighty Mo', was the last of the great battleships completed for the US Navy. She was the last active battleship in commission with any navy in the world.

I subsequently received an email from Jim Davis WH6Q. Jim, a member of the Battleship Missouri Amateur Radio Club, offered to host my visit to 'Radio Central', the principal radio compartment on the main deck of the ship. Jim was assisted by Bill Kendall N0CO (no relation as far as we can tell, but we are working this one!).

With a keen interest in World War II history, having watched the movie *Tora Tora Tora* ad nauseam, and being a pilot,

Japanese at the end of WWII in Tokyo Bay. Her keel was laid in 1941 and she was commissioned in June 1944. In 1991 she served in Gulf War I, and was decommissioned 1992.

The US Navy designation for the Missouri is BB-63 and the club has the vanity call sign KH6BB. Its nominal SSB operating frequencies are 14263, 18163, 21363, 24963, and 28463 kHz. If you are a brass pounder, bring your own key/keyer unless you want to use the vintage J-38 straight key. There is a Vibroplex bug similar to the one

I figured that a trip to KH6 would not be complete without a visit to Pearl Harbour. Infamous for being the target of the surprise Japanese attack on 7 December 1941 resulting in the USA finally being drawn into WWII, Pearl Harbour is also home to the USS Arizona Memorial (<http://www.nps.gov/usar/>), submarine USS Bowfin museum (<http://www.bowfin.org/>), Pacific Aviation Museum (<http://www.pacificaviationmuseum.org/>), and of course the USS Missouri (<http://www.usssmissouri.com/>).

It was on board the deck of the Missouri that General Douglas MacArthur and Admiral Chester Nimitz, along with other US and Allied officers (General Sir Thomas Blamey was the Australian representative), accepted the unconditional surrender of the



USS Missouri with all guns blazing.

used to send the surrender message, an electronic keyer, and a paddle is also connected. RF equipment varies, but will likely be a Kenwood TS-450 driving an AEA linear amplifier that usually runs at about 500 watts output. This was the line up during my visit.

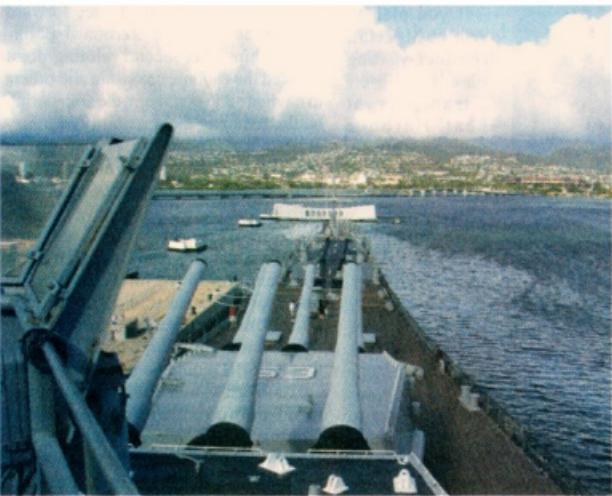
The antenna most commonly used is an original Navy HF discone (cross between discone and birdcage antennas, omnidirectional, 10-30 MHz, vertically polarized) mounted on the bow of the ship, and installed as part of the ship's refit in the mid 1980s. KH6BB is also equipped for 2 m and 70 cm FM. Repeater KH6JPL is usually monitored and EchoLink node 302324 'OPENIRLP' and associated IRLP nodes are the station's primary means of VOIP. These facilities are useful for local



HF dipole antenna on the bow of USS Missouri.



It was on the centre gun barrel of this forward turret that American singer Cher performed the video clip for her 1989 hit 'If I could turn back time'



View from the bridge of the Mighty Mo towards the bow showing the HF Dipole, with the USS Arizona Memorial, and Honolulu, in the background.

communications, and to liaise with DX stations for contacts. In my case, they proved to be the only way to QSO back to VK during my visit.

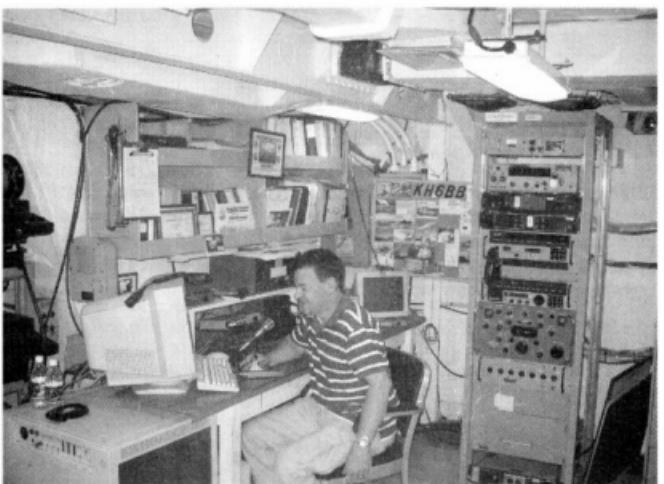
I would recommend that any amateur

travelling to Hawaii consider arranging a guest operating spot aboard the Missouri. Details on how to do this are at the KH6BB website. The hospitality shown to me by Jim and Bill, along with Randy

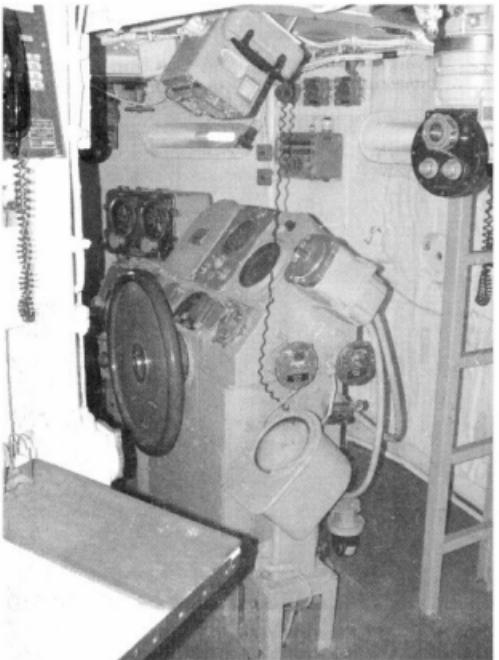


Secure entrance to 'Radio Central'. This door has a combination lock. During its operational days, very strict security was maintained with only a limited number of security cleared personnel allowed entry.

KH6IB, was first class and I thank them all. Having met many fellow radio amateurs in my travels, I can attest to the



VK3WL operating KH6BB



Fortified bridge within the main bridge structure enabling navigation of Missouri whilst under attack. NB: Periscope, wheel, and 'peep' slots in the 300-400 mm steel enclosure.

hospitality that is usually extended by our brethren, and these guys exceeded the norm.

If you plan to visit the Missouri, consider visiting the other attractions at Pearl Harbour mentioned above. We were hosted at the USS Arizona Memorial by retired USNR medical officer John KH6HAM. John, a volunteer at the Memorial, provided valuable intelligence about ways to beat the ticket lines, security and carry-on baggage requirements, parking and bus routes, and so on.

The Arizona is a battleship sunk during the raid of 7 December 1941 and 1177 men are entombed in it.

Entry to the Memorial is free. If you plan to see the Arizona Memorial and you also wish to visit the other attractions at Pearl Harbour, consider being at the Memorial about 0730 and plan to stay until about 1700, or do the Arizona Memorial and USS Bowfin on one day, and the Pacific Aviation Museum and USS Missouri on Ford Island another day. These are not visitations to be rushed.

A tour of the Missouri is nothing short of spectacular, and regardless of whether you are interested in WWII, ships, or anything else specific to what you might associate war memorabilia with, the Mighty Mo is an engineering marvel of its time. She is big by definition, and a tour of this ship and the boat Bowfin provides a contrast of the differential in living and working space and conditions available to surface going sailors compared to their submariner colleagues.

Given the ship's vintage, some of the engineering design and construction is a marvel to see. Within the bridge for instance, is another bridge that is secured by armour some 300-400 mm thick. There is duplicate steering gear and navigation instrumentation within this compartment with slots to see forward and to the port and starboard flanks of the ship. This second piloting point enabled the captain, coxswain and others to navigate and command the ship during battle, reducing the possibility of injury or death from enemy fire. The gun turrets are multi story and the barrels capable of firing shells about the size of a 100 litre garbage bin.

Prior to my departure, I advised Ballarat Amateur Radio Group (BARG), Amateur Radio Victoria (ARV) and Singapore Amateur Radio Transmitting Society of my schedule and operating frequencies, IRLP and EchoLink details that KH6BB would be using from 0000 - 0200 Z 25 March 2008, the appointed time for my operation. I was particularly looking for VK and 9V stations. The BARG and ARV circulated these details to their members. Unfortunately HF propagation south and west of Hawaii during that period was only average at best. Jim had previously advised me that this may be the case, hence my advice about the use of IRLP and EchoLink as a means for liaison.

Several contacts on 20 m were made with US and European stations, however

all was not lost. We did manage to QSO VK3s BVI, MRK, HHK, FSTU, CC et al, via IRLP, and heard VK3KBC on HF. Not quite the same as a point to point HF contact but far better than nothing at all. The VK stations did indicate that they could hear us on 20 m; however we could not hear them under the pile-up. One gets a sense of what our northern hemisphere colleagues face by way of QRM when operating from KH6. To the stations we did work, a QSL card from KH6BB can be obtained and details are on its website.

Being able to run up to a kilowatt into an aerial driven against an earth that is about as good as an earth system ever gets (metal hull and super structure sitting in salt water), albeit an omni directional vertical, gives you a pretty good start when trying to work DX. However it was not enough under the prevailing conditions to work into Australia or Singapore on the day and beat the stateside stations. It is regrettable we do not have parity power privileges with our US colleagues.

Operating in the US is easy. Take your radio and your licence with you: I recommend packed in your checked-in baggage in lieu of carry-on, and sign portable your location. For example, VK3WL/portable KH6. KH6 repeater details are available on the WWW as are contact details for the local clubs.

We flew QANTAS (QF) to and from Hawaii. The price difference per sector between QF and the Low Cost Carriers (LCC) was about AU\$100 per person. Given that a LCC fare only buys you a seat, with food, beverage, entertainment, domestic to international terminal transfers at Sydney Airport, and the like, being at additional cost, we figured that flying with QF and getting full service plus frequent flyer points was a better deal.

Inter island flights were with Hawaiian Airlines. Apart from its strict adherence to a 50 lb (22.7 kg) per checked in bag weight limit, they were OK. Excess weight over this limit will cost you AU\$50 per bag. One of our bags exceeded this limit and it hurts, let me assure you, when you have to fork out for the excess baggage charge. We better distributed the weight around our three suitcases before flying Maui-Oahu-Sydney-Melbourne on our return flights and all was well.

The annoying thing about this strict

check-in luggage weight policy, and all LCCs to my knowledge do this, is that you are offered the opportunity to remove weight from your check-in luggage and put it into your carry-on baggage. This has the effect of bringing more weight into the cabin, which for safety reasons is the very place you do not want it, at the expense of having it where it ought to be in the cargo hold. Weight in an aircraft equates to extra fuel burn amongst other things.

Shifting weight from the cargo hold into the cabin overhead lockers does not reduce the take off weight of the aircraft. Save for the baggage handlers having to lift the weight in your cases, I am not sure what the AU\$50 fee actually achieves as the baggage handlers still have to lift your case regardless of the excess baggage fee you pay, and if you take the excess weight into the cabin the aircraft still has to burn extra fuel to carry it. Caveat emptor.

Accommodation in Hawaii is expensive compared to Australia and very expensive when compared to Asia. I was warned about low cost accommodation (AU\$150-250/night) in Hawaii being old and not well kept or cleaned. Unfortunately this advice was correct. If we could rewind the tape so to speak, we would seek accommodation outside of Honolulu, which when all is

said and done is very similar to our Gold Coast in Queensland. Accommodation on Maui was much better and more affordable.

Our room in Honolulu was on level 22 of the Aqua Island Colony a few blocks from Waikiki Beach, which is about the same size as Bondi Beach in Sydney and not what you might imagine it to be from watching Elvis Presley movies or Hawaii Five-O!

This circa late 1960s hotel has some renovated rooms that are good value, and others that are poorly preserved and not well kept examples. We use www.tripadvisor.com extensively when planning travel and this site has candid photos and comments from travellers about hotel rooms and not just the publicity shots used by the hoteliers. I would recommend this website to readers. In our case we read the reviews, took a risk, and left with mixed feelings.

My FT-470A runs about 2.3 W output, which was adequate from our high sited location. Some repeaters in Hawaii are not located on the abundant mountain tops but in lower lying areas and you will sometimes find the constraints imposed using a compact antenna and low power an issue from low elevation areas depending on where you and the repeater are located relative to each other.

WH6F, which can be accessed using



Bruce VK3WL and Bill N0CO with some of the WWII vintage equipment remaining within 'Radio Central'.



Jim WH6Q and Bruce VK3WL at the place of the signing of Japan's formal instrument of surrender on 2 September 1945.

EchoLink via KH6IB-L, is a good example. This repeater is located 5.6 km north of Honolulu International Airport. I found accessing it from Waikiki, for instance, impossible. This surprised me in one way, but then again there are a lot of steel reinforced concrete high rise buildings around Honolulu to contend with and once away from the coast the terrain is undulating and spectacularly mountainous. Access to this repeater with a hand held radio is not easy even from the deck of the Missouri.

If you plan on some serious operating then choose accommodation close to the top floors in a high rise hotel or condominium. For VHF/UHF, consider a 1/4 wave vertical that can be clamped to a balcony rail, or a dipole or J-pole that can be taped to a hotel room window will be an advantage.

For HF, a piece of wire dropped over the side of your balcony driven against the hand rail reportedly works OK, however this is likely to be location specific. If you are staying in a low rise, there are often plenty of palm trees to throw a wire up.

Vehicle hire through Avis was good value. Be aware however that unlike in Australia where a basic amount of insurance cover is automatically included in the hire contract, in the US this is not the case. I understand that if you have insurance for your private car in the USA, then this extends to hire vehicles as well. Hence the reason this is not a standard integral feature of the hire contract.

Clothing, shoes, alcohol, tools, cars,

and fuel were significantly less expensive than in Australia. I purchased several pairs of Levi jeans for US\$30 that are usually A\$80-160 in Australia. Sports and casual runners and shoes were about 25-30% of the VK price, and petrol about 40% less at the time of our visit.

Fast food and the famous US\$2.99 breakfasts are excellent value for money, however good healthy food with decent portions of vegetables available at restaurants is relatively expensive, and more so when you consider that you will be expected to pay a 15-20% gratuity on top of the bill! Interestingly, our youngest daughter told us that some McDonald's hamburgers and deserts were more expensive in Hawaii than here in Victoria.

The wedding took place on the island of Maui and went well. There is an entire industry built around couples wanting to tie the knot on one of the Hawaiian Islands. If you plan a visit, Pearl Harbour is a must, as is the Polynesian Cultural Centre on the north coast of Oahu. Consider visiting one or more of the outer islands. A student of mine spent a week on each of the four main islands in the group and tells me that each one is worth a visit and is unique in its own way.

It took me three days to become accustomed to driving on the 'wrong' side of the road. My XYL is an excellent navigator but we hired a GPS with the vehicles. I would recommend such a device in addition to using a paper map to see the bigger picture. A talking GPS makes entry and egress from Honolulu's

freeway network simple, and if you miss a turn recalculates your route meaning you do not have to worry about becoming geographically embarrassed or distracted whilst trying to find a way to fix the mess you have just got yourself into.

Using mobile phones and radios whilst driving in Hawaii appears to be legal, not that I would recommend this under any circumstances, and more so if one is not accustomed to piloting left hand drive vehicles. If you plan to partake in amateur radio activities other than operating or visiting KH6BB and perhaps operating portable, contact the local radio clubs and make yourself known via on-air contacts and email.

I would like to thank Jim WH6Q, Bill N0CO, John KH6HAM, Randy KH6IB, the Battleship Missouri Amateur Radio Club KH6BB, and the many other Hawaiian amateurs who extended or offered their hospitality to my family and myself during our visit. It was this amateur radio spirit that will endure in my memory for a long time to come. If you hear KH6BB on-air, give it a shout. The folks there are very friendly and willing to share their knowledge about their mount, the USS Missouri.

Having experienced operating from an historical monument such as the Missouri, one wonders about the possibility of amateur radio stations being established at some of our national memorials and places of historical interest where radio played a significant role in operations. Military, aviation, maritime, communications and airborne medical and education facilities, museums and memorials immediately come to mind.

Take a look at the links to other retired USN assets on the KH6BB WWW site that have an operational amateur radio station attached to them (I understand this list is indicative and not exhaustive). Having experienced operating from a piece of living history such as the USS Missouri, one begins to suspect that perhaps our US amateur radio colleagues are doing something we down under need to consider.

The USS Missouri ARC participates in the annual Museum Ships Weekend, as do many others, apparently including the HMAS Diamantina VK4RAN.

Details can be found at <http://users.tellurian.com/freddie/nj2bb/ship-event.html>

Icom IC-7700 HF - 6 m all mode transceiver

Bill Roper VK3BR

The IC-7700, a mains powered base station radio, is a new addition to the comprehensive Icom range of HF transceivers, slotting in between the mid-range IC-756 Pro III and the top-of-the-range IC-7800. In many ways it is an upgraded version of the IC-7800, but without the second receiver, and at half the price; or perhaps you could look at it as an IC-756 Pro III on steroids. Whichever way you see it, there is no doubt that this transceiver is a superb example of modern communications technology.

The IC-7700 has so many features that the challenge I faced in preparing this review was not what to write about, but how to keep the review within a reasonable size for publication. To give you an example, the users' operating manual for the excellent mid-range IC-756 Pro III consists of 117 pages, whereas the operating manual for the IC-7700 contains 216 pages. It is the first amateur transceiver manual that I have seen which is not a bound volume but comes as loose-leaf pages in a four-ring folder. Incidentally, as with other Icom equipment, the full operating manual for the IC-7700 is downloadable from the internet in PDF format.

First impressions

My first impression on seeing the IC-7700 in its box was that it is **HUGE!** It is double boxed, and very well packed, weighing in at around 37 kg in the cartons. It literally takes two people to get the transceiver out of its box. Depending on how fit you are - the unboxed IC-7700 weighs around 22.5 kg - you may even need the second person to help you lift it up onto your operating table.

It is very similar in size and weight to the IC-7800 and also includes an AC power supply. Dimensions for the IC-7700 are 425 mm wide, by 149 mm tall, by 437 mm deep. Also, it comes with rack-mount handles installed, but they can easily be removed.

The main tuning knob comes unattached to the transceiver, and one of the first tasks after un-boxing the IC-7700 is to carefully install it according to the instructions supplied using an included hexagonal wrench.

This is one impressive looking radio with the large (15 cm wide by 8 cm high - 800 x 480 pixels) colourfull matrix TFT screen dominating the front panel, and the black controls on a black background clearly marked with white lettering (see Photo 1).

Many controls, when activated, light up or produce readout on the very clear TFT screen. A noticeable exception to this is that the band select keys to the right of the screen do not illuminate when pressed (even though it says they do in the manual!).

Surprisingly, the front panel does not seem cluttered, particularly compared to the IC-7800 (which has the second receiver controls included on its front panel). I found that operating the IC-7700 was remarkably intuitive compared with some other transceivers in its class. Those who have operated one of the IC-756 Pro series of transceivers will immediately feel right at home.

What can it do?

It might have been easier to detail what the IC-7700 cannot do. I found it difficult to imagine what I would like the transceiver to do that it does not already do, apart from the dual-watch capability which a second receiver would provide (such as in the IC-7800 or my FT-1000D), or perhaps make me a cup of coffee.

Incidentally, I understand Icom made the decision to omit the second receiver from the IC-7700 in order to keep the price down, and also to attain no-

compromise performance in the single receiver. An interesting decision, but the end result seems to be a transceiver, which is virtually an updated IC-7800 without the second receiver (there are connectors on the rear panel of the IC-7700 to enable easy connection and synchronisation of a second receiver), at half the price of the IC-7800, and with arguably one of the best transceiver receivers available.

Let me run through some of the features of the IC-7700, only expanding on those features which I believe are worthy of further comment. If you want a full list of the IC-7700 features and specifications, you can look them up on the internet from the sales brochure and the user manual.

First of all, the IC-7700 is a leading edge performance HF/6 m transceiver, with a separate receiver front end for 6 m. The transmitter will only operate on the amateur bands, but the outstanding receiver provides full coverage from 30 kHz to 60 MHz. A useful feature is the warning beep when you tune past an amateur band edge.

The transceiver has two independent 32-bit floating point DSP ICs (of a later generation and faster than those in the IC-7800), one for the transmitter and one for the impressive spectrum scope.

The double-conversion receiver performance is outstanding with a 110 dB dynamic range measured on 14.100 MHz, and an incredible better than +40 dBm third order intercept point also measured. A built-in tracking pre-

**There is no doubt
that this transceiver
is a superb
example of modern
communications
technology**



Photo 1: A front panel view of the IC-7700 transceiver



Photo 2: A rear panel view of the IC-7700

selector, DIGI-SEL, which automatically tracks the operating frequency (but does not operate when either of the two RF preamplifiers are in circuit), together with mechanical relay-switched (instead of switching diodes) front end band-pass-filters with large capacitors and toroidal coils, offers superb strong-signal HF performance.

Receiver performance is further enhanced with selectable 15 kHz, 6 kHz and 3 kHz roofing filters before the first IF amplifier, DSP IF filters with twin pass-band tuning (graphically displayed on the screen - very helpful in reducing noise and signal interference), very effective manual and automatic notch filters (the automatic notch filter can effectively handle two or more interfering heterodynes at a time) with a stop-band attenuation of 70 dB, a variable noise blower and separate DSP noise reduction, and a precision oven controlled master crystal oscillator with ± 0.05 ppm frequency stability and a 10 MHz Reference I/O jack (which allows the IC-7700 to clock other equipment, or be clocked from a higher-level master clock source).

Band changing is quick and easy with dedicated buttons for each amateur band and one for general coverage. You

can also use these buttons for direct frequency entry. The triple band stacking registers for each amateur band are extremely convenient for band hopping. The RIT and the transmitter independent tuning both operate over a range of ± 9.99 kHz

There are 101 memory channels with the usual access and scanning facilities. Memories can be tagged with a 10 character alphanumeric label and the memory list screen displays up to 15 memory contents at a time, making it easy to scroll through the memories. There is a separate memo pad facility which enables quick storage of a frequency which can be recalled with a single key press. This memo pad facility works on the basis of last in, first out.

With the DSP IF filtering, a variable choice of selectivity options is available from 3 kHz on SSB out to 9 kHz on AM. The filter shape can be set to 'sharp' (a flatter top to the filter shape which actually produces a wider frequency response) or 'soft' (which produces more of an analogue filter band pass). As when testing the IC-756 Pro III, I found the 'sharp' setting to be preferable on SSB, whereas the 'soft' came into its own on CW.

There are two AGC loops and the

AGC action is outstanding. Not only can the AGC time constants be set in three presets - slow, medium and fast - which are adjustable from 0.1 to 6 seconds, but the over-riding AGC VR control on the front panel enables quick and easy manual adjustment of the AGC reaction time.

The DSP noise reduction facility works very well. Push the NR button and the level and intensity noise reduction can be adjusted by turning a rotary knob. It is fast acting and very effective at reducing all sorts of noise and static. Signal readability is enhanced with minimal colouring of the received audio. However, in action it does attenuate the received audio output somewhat.

In addition, the IC-7700 has a standard, adjustable noise blower which is quite effective on pulse noise such as that produced by car ignition systems.

A main feature of the IC-7700 is the multi-function spectrum scope, with adjustable resolution bandwidth, which is excellent. I am not sure how I will live without it when I return the transceiver under review to Icom!

One of the many features of the brightly coloured TFT screen, which carries a wealth of information, is that you can set the multi-function meter to be an edge meter, a bar graph meter, or an extremely realistic analogue meter. It is hard to imagine that what you are seeing on the screen is not an actual analogue meter!

Two types of screen images and five types of frequency readout indication fonts are available. The frequency readout is in large, clear characters and reads out to 1 Hz.

In addition to frequency and the spectrum scope, the IC-7700's screen can vividly display just about anything you need to know about the operating parameters of the transceiver, including mode, antenna, memories, and graphical displays of the IF filters, plus two 24 hour clocks which display local time and UTC time in digital format in the top right hand corner of the display.

There are four SO-239 antenna connectors on the back panel. Once the operating bands are programmed into the ATU memory, the IC-7700 will automatically select the correct antenna as operating bands are changed.

In addition to the four SO-239 antenna connectors, the rear panel of the IC-7700

carries a large number of connectors (see Photo 2). There are sockets for a separate receive-only antenna or a separate receiver. In-line front-end filters can also be inserted here. There is a transverter drive capability which gives about -20 dBm on transmit with display offsetting. The usual accessory sockets are there including switching for linear amplifiers. There is also a CW key jack in addition to the one on the front panel.

The HF/6 m transmitter delivers a maximum of 200 W output at full duty cycle from a pair of MRF-150 MOSFET transistors running from a 48 V dc supply. The power is easily variable by a control on the front panel from 5 W to 200 W (5 W to 50 W in AM mode).

There is a built-in high speed automatic ATU which covers all the HF bands and 6 m. Once the ATU matches an antenna, the ATU settings are memorised as a preset point for each frequency range in 100 kHz steps so that when you change the frequency range the ATU settings are automatically changed. You can deactivate the ATU if the SWR is 1.5:1 or

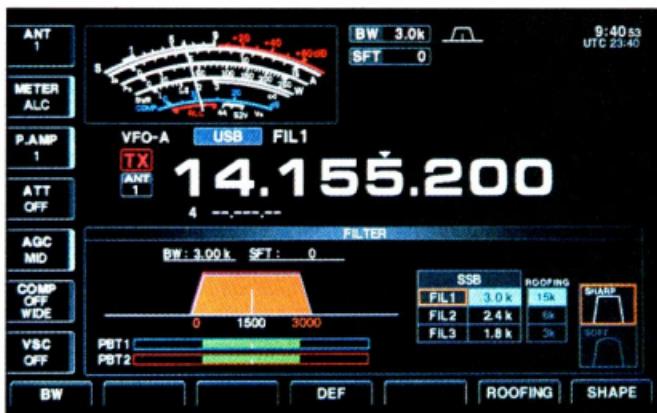


Photo 3: The IC-7700 filter set screen

less, and it will automatically reactivate when the SWR exceeds 1.5:1.

All modes are available on the IC-7700, and a great feature is that you can operate RTTY/PSK31 from the IC-7700 without any peripherals needing

to be attached except a USB keyboard. There are two USB ports on the front panel which can be used for the external keyboard and for a USB memory drive to download settings or upload information such as updated firmware. There is also

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a VGA socket on the rear panel so that you can connect a computer screen and display a facsimile of the transceiver's TFT screen.

A nice feature is the in-built digital voice recorder with REC (record) and PLAY buttons on the front panel. The digital voice memories hold up to four messages for transmit, and up to 20 messages for receive. A maximum message length of 30 seconds can be recorded into receive memory (with a total message length for all channels of up to 209 seconds) and a total message length of up to 99 seconds can be recorded in transmit memory. This voice recorder records not only the received audio, but also the information such as set operating frequency, mode, and the recording time for future reference.

On the air

When out of its boxes, installed on the operating table, and switched on with the POWER switch on the front panel (there is a catch here as you need to first switch on the power supply with the rocker switch on the back of the transceiver), the transceiver springs into life after four to five seconds of relay clicking, with the colourful and large TFT screen dominating the front panel.

One of my first impressions of the IC-7700 receiver was how quiet it is. With the two receive pre-amps out of circuit, the internal noise was barely discernible. Also impressive was the clean audio response from the internal speaker emanating from the top of the transceiver case. A good test of receiver audio is when listening to a local commercial broadcast station, and the IC-7700 passed with flying colours. The audio was even better when using a good quality external speaker.

This radio is easy to set up and operate. Unlike some other radios, which have a multitude of layered menus, most of the functions of the IC-7700 are accessed by dedicated front panel controls. For example, instead of pressing the FILTER button momentarily to cycle through the available filter settings (the default for SSB is 1.8 kHz, 2.4 kHz and 3.0 kHz), if you hold it pressed for one second the filter set screen appears (see Photo 3), enabling you to select the required roofing filter, the pass-band shape, and see the effect on the filter shape of varying the two passband tuning

controls. If you push the SHAPE (F7) for one second (instead of pressing it momentarily to cycle through selecting the SHARP or SOFT shape), the filter shape set mode screen appears.

Similarly, if you press and hold for one second the NB button, the noise blanker mode set screen appears and allows you to adjust the noise blanker depth and width. All very intuitive and much simpler than paging through 100 or more layered menus.

The 55 mm diameter main tuning knob, with a weighted flywheel and adjustable drag, is very smooth in operation and controls the A and B VFOs with the usual switching available. Normal tuning is in 1 Hz steps, but a quick push of the TS button enables quick selection of a faster rate (hold the TS button for one second and the fast tuning rate screen appears). You can select 0.1, 1, 5, 10, 12.5, 20, or 25 kHz as the fast tuning rate.

When a fast tuning rate is selected an indicator appears over the kHz digit in the frequency readout (which reads down to 1 Hz). When the tuning knob is turned fast the tuning rate increases. I set the fast tuning rate at 100 Hz and pushed the TS button to enable the 1 Hz tuning steps when I needed to accurately tune in a received signal. A 1/4 tuning rate is selectable for fine-tuning data signals.

The receiver front end can be optimized to suit different operating conditions. There are two selectable preamplifiers, four levels of signal attenuation, and an RF gain control. In order to improve the front end's ability to handle very strong out-of-band signals, a sharply tuned preselector, using relay switched capacitors and inductors to automatically track the signal, can be enabled by pressing the DIGI SEL button.

I particularly liked the comprehensive spectrum scope. It has an 80 dB dynamic range and will display the spectrum on either side of the transceiver receiving frequency with spans selectable from ± 2.5 kHz to ± 250 kHz.

All of the features of the receiver worked exceptionally well. The AGC, over which you have full control, was outstanding.

The IC-7700 is arguably the best HF receiver I have ever used, virtually lacking for nothing in either facilities or performance.

On SSB transmit it is very easy to tailor the transmitted bandwidth, and

also the audio bass and treble boost and cut. Reports received on the transmitted audio were excellent using an Icom SM-20 microphone (no microphone is supplied with the IC-7700, Icom arguing that dedicated radio amateurs who buy this rig will want to use their own choice of microphone).

The speech compressor did not appear to introduce any distortion but made a worthwhile improvement to audio 'punch'. All reports were that the transmit audio was very clean.

The cooling was very efficient and relatively quiet even when running the IC-7700 at its full 200 W output.

Conclusions

The IC-7700 is one of the most outstanding transceivers I have ever used. Its performance and features are virtually unequalled unless you are prepared to spend at least twice as much. Incidentally, each IC-7700 comes with its own laboratory test report. The unit under review matched or exceeded all specifications.

The features that impressed me most, apart from the ones you would expect from a top of the line transceiver like the IC-7700, were the receiver performance, which was outstanding, the receive and transmit audio quality, the usefulness of the spectrum scope, and the overall user friendliness of the whole transceiver.

The only thing that could be said to be lacking from the IC-7700 is a dual-watch facility. Keen DXers generally use split frequency operation when chasing a rare DX station and therefore need to be able to monitor their transmit frequency simultaneously with the receive frequency.

The IC-7800 uses an independent second receiver which is one of the reasons it costs so much more than the IC-7700. The IC-756 Pro series have a dual watch facility whereby both receive channels use the same IF/audio path, and one wonders why a similar facility was not made available in the IC-7700.

Personally, I did not consider the lack of a dual watch facility a major problem. When operating split, both the receive and the transmit frequency appear on the TFT screen, and a push on the conveniently located XFC button switches the receiver to the transmit VFO frequency.

I did not try the IC-7700 on any

The Spy in a Biscuit Tin

Miniature Communications Radio MCR-1

John Nieman

The Biscuit Tin Radio shown is more formally known as the MCR-1 Miniature Communications Receiver. Between 10,000 and 30,000 of these were manufactured by Philco in the second half of WWII,

Mainly designed for clandestine operation the sets were often packaged in a tin similar to that marked 'Huntley and Palmer Biscuits 2lb'. At least 5000 of the radios found their way to Occupied France where they went to war behind the lines.

The receiver had four interchangeable coils and was a five valve superhetrodyne with amazing sensitivity. It could also receive CW.

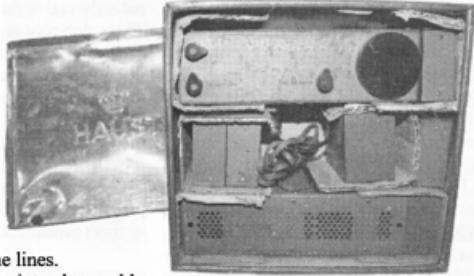
Included in the tin as well as the receiver were the four interchangeable coil boxes, associated batteries for portable operation, a set of light-weight low resistance headphones (120 ohm), AC/DC multi-input voltage power supply, 30' of antenna lead and a 10' earth wire.

This small device, the radio little bigger than a fat paperback, played an important part in the communications between De Gaulle's Free French Forces in England and the Maquis or French resistance in Occupied France. Using the BBC broadcasting system, thousands of strange coded messages swamped the airways and kept the German intelligence system overworked.

The BBC news broadcast into France would always begin with the opening bar from Beethovens 5th, *didididah* which CW people will recognise as V (for Victory) and the words "And now before the news, some personal messages"

Then followed a series of strange statements, eg 'the dice are on the table', meaning sabotage railway lines; and 'it's hot in Suez', meaning attack telephone lines. These messages went to air some days prior to the D-day invasion.

But probably the most important



message ever received was a line by the French poet Verlaine: 'Blessent mon cœur d'une langueur monotone' or 'Wound my heart with a monotonous languor'.

This informed the Resistance that Operation Overlord, the D-Day invasion, would occur within hours and that they should rise up and harry the Germans behind the lines. Strangely enough, the German intelligence service, monitoring the broadcasts, knew that this was the code line for the invasion and yet with 'monotonous languor' German forces reacted extremely slowly.

Our common image of the Resistance is of small guerilla groups, but uprisings were sometimes large: reportedly 7000 maquisards, including Nancy Wake, an Australian, fought 22,000 SS troops in the Auvergne region in late June 1945.

For a full technical description of the MCR-1 please go to www.vk2bv.org/museum, part of Waverley Amateur Radio Club's website for the Kurrajong Radio Museum managed by VK2ZIO Ian O'Toole.

Other Reference:

Assembled by John Nieman, Newsletters Unlimited from sources including VK2ZIO, Kurrajong Radio Museum, BBC archives, Royal Signals Museum(UK) and various other archives.

mode other than SSB, nor did I try it on 6 m. However, I have no doubt that it will provide a similar outstanding performance on the other modes and band as it did on the HF bands and SSB.

My thanks to Kitty Mau and Peter Willmott VK3TQ from Icom Australia for the loan of the review transceiver. It was hard to give it back!

The list price of the IC-7700 is \$7,700. However, by shopping around the Icom dealers, you may be able to do better than that.

Editor's note:

Peter Willmott from Icom Australia comments:

My only comment on the review is that Bill said that Icom removed the extra receiver to keep the price down, which is not quite right.

The fact is that Icom were looking for an affordable, no compromise transceiver that pleased the majority of users. The IC-7700 was born.

ar

Over to you

FISTS Down Under

I am hoping you will allow me to use "over to you" to propagate details of a net I have started on behalf of FISTS Down Under (FDU) CW Club, which comprises mainly VK and ZL hams.

Though mainly a club net, all are welcome: members and non-members; old hands and new fingers. As net control is on SSB, even those who cannot use CW but are thinking of taking it up can call in for a chat.

Operators are requested to check in on SSB unless conditions (or the lack of a microphone, hi) dictate CW. They will then be directed to a CW frequency in pairs.

The net is held each Wednesday at 7.00 pm EST (0900 Z) on 3546 kHz.

Anyone wanting more info can ring me on (03)5756 2084 and I will ring them back immediately, thus minimising their costs. Or write: P.O. Box 217 Porepunkah Vic 3740. Sorry, I do not have email facilities, being somewhat of a dinosaur!

Hoping to see you on the net. 73

David VK3FGE

VK2

Tim Mills VK2ZTM
arnews@tpg.com.au

Activities this month in VK2 include the AGM of the **Oxley Region ARC** on Saturday the 2nd. The **Mid South Coast ARC** hold their next quarterly meeting on the second Saturday. The **Summerland ARC** SARCFEST is on Sunday the 10th. **Blue Mountains Winterfest** is Sunday the 24th and the **Twin Cities field day** on Sunday the 31st. Check detail on VK2WI news bulletins at 10 am and 7.30 pm Sunday or on the ARNSW web site.

WICEN recently had Nick VK2ZNF volunteer to act as Secretary/Treasurer. WICEN will provide communications to the Shahzada horse enduro in the week 25-29th August.

Manly Warringah RS had Dick Smith VK2DIK as their guest in June. Dick recounted his world adventures to the well attended meeting. The Society meets each Wednesday evening at Terrey Hills. Their AGM was last month. Contact via the repeater on 146.875, or phone on Wednesday evening to 02 9450 1746 or the web site www.mwrs.org.au

Liverpool and District ARC and the **Fishers Ghost ARC** have joined forces to provide assessments for the region.

Central Coast ARC had their AGM and principal office bearers for this year are President Col Hodgson VK2ZCO, Vice President Bob Ridgley VK2ZAR, Secretary Greg James VK2GRJ and Treasurer Ray Tooby VK2HAY. Many attended the major working bee at their Somersby repeater site on June 21st.

Summerland ARC plans to activate several regional Lighthouses this month. Repairs and maintenance at the club rooms for the annual SARCFEST are in progress and a Sunday afternoon BBQ is planned, most likely September 14.

They are seeking a 10-15 amp 240 AC to 13.8 V DC power supply with auto battery change over and charging capability for the planned new Tenterfield Acacia Plateau 2 metre repeater.

Orange and District ARC meets on the first Friday evening at 1930 at the club house, RAAF 29 Flight building at

64 Warrendine St. Orange. Their AGM was this month. Contact point is an email to secretary@odarc.org

Waverley ARS held their AGM recently and annual auction last month. Their club rooms at the Rose Bay Scout Hall have been renovated. The building is now being used regularly by other groups which reduces the available slots. Located in the eastern suburbs of Sydney they provide regular exams.

Six months to go to the **Mid North Coast Expo** in January 2009. The Group produces a range of kits, all proceeds support repeater facilities in the region.

RD contest and Lighthouses

Every VK2 is encouraged to take part in the annual RD Contest and send in a log to help the State battle against smaller States who can achieve big scores. The number of logs count! VK2WI will provide a news bulletin and opening address from 1730 hours Saturday. Normal news on Sunday the 17th.

The International Lighthouse/Lightship event suitable for those near a bit of water is on the same weekend. See page 23 of July AR for details.

Both events need your support.

The **Home Brew Group of ARNSW** meets at North Parramatta first Tuesday evening of each month and the afternoon of the bi-monthly Trash and Treasure at the VK2WI site, next T&T is last Sunday of September.

Contact points for ARNSW. Mail to P. O. Box 6044 Dural Delivery Centre NSW 2158. Fax to 02 9651 1661. Office phone 02 9651 1490 – into a message bank. VK2WI phone at broadcast time 02 9651 1489. The freecall number for NSW outside the Sydney region 1 800 817 644, email and web addresses are scheduled to be upgraded shortly. Advice will be given in due course. News for inclusion in the VK2WI sessions by Friday afternoon to arnews@tpg.com.au Advise if for more than one week although a different version each week is preferred. The service is available to

all as a means of spreading the word locally.

The VK2WI Morse transmission on 3699 kHz had a replacement transmitter, purpose built by Station Engineer Mark VK2XOF, installed in June. It operates continuously except at broadcast times with a power of about 40 watts into a half wave dipole. Reports are welcome via arnews@tpg.com.au Soon to be upgraded is the 23 cm beacon on 1296.420 MHz. A new transmitter is being constructed which will lift the power output from the present 2 to about 20 watts. It feeds a horizontal slot antenna 20 metres high at the VK2RSY/VK2WI site. The Morse ident will change from a FSK to CW keyed mode.

A technical segment has been added to the VK2WI evening news session. Listeners are invited to contribute input with segments of about 100 words. Details are given in the news session. Send your contribution via email to the news address given above.

73 – Tim VK2ZTM.

Twin Cities Radio & Electronics Club AGM

Geoff Atkinson VK3AFA

The Twin Cities Radio & Electronics Club held their AGM in Albury on Monday 14 July. It was acknowledged another good year had been had by the 50+ members of the Club.

WIA Secretary Geoff Atkinson VK3AFA, representing the WIA President and Board, attended from Melbourne. Geoff presented the 2007 Club Grants cheque to TCREC Club President Tom Sanders VK2XAU to assist the projects submitted to the Awards Committee for consideration.

He also presented the Al Shawsmith Award to Graeme Scott VK2KE for his article in July 2007 AR on Teaching Amateur Radio Classes. Graeme had been invited to conduct the Club elections and was surprised to receive his award in front of fellow members.

VK3

Jim Linton VK3PC

Website: www.amateurradio.com.au

Email: arv@amateurradio.com.au

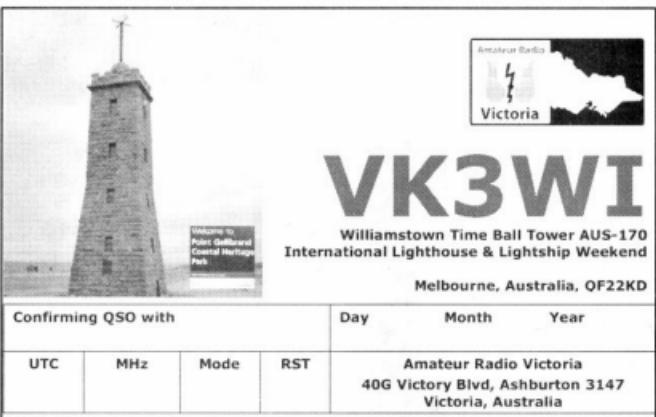
Lightship & Lighthouse Weekend

For its fourth year, Amateur Radio Victoria will activate the Williamstown Lighthouse and Time Ball Tower during the International Lighthouse and Lightship Weekend, 16-17 August.

The operation will be led by our

visited the site in the Point Gellibrand Coastal Heritage Park overlooking Hobsons Bay.

A special QSL has been struck which pictures the lighthouse on the front and gives historical information about it on



Willowton to Point Gellibrand Coastal Heritage Park

Amateur Radio Victoria

Victoria

VK3WI

Williamstown Time Ball Tower AUS-170
International Lighthouse & Lightship Weekend

Melbourne, Australia, QF22KD

Confirming QSO with				Day	Month	Year
UTC	MHz	Mode	RST	Amateur Radio Victoria 40G Victory Blvd, Ashburton 3147 Victoria, Australia		

Events Coordinator, Terry Murphy VK3UP and again a warm invitation is extended to others to visit and operate the station at the end of Nelson Place, Williamstown.

During the ILLW 2007 there were more than 400 contacts made including 21 other VK lighthouses in all states and two from New Zealand. More than 30

the back.

Listen also for other VK3 lighthouses: VK3ANR *Split Point*, VK3ARK *Cape Liptrap*, VK3ATL *Point Lonsdale*, VK3EG *Point Hicks*, VK3EMF *Cape Schanck*, VK3GER *Eastern Lighthouse MacRae*, VK3YME *Cape Otway Light Station*, and VK3ILH *7 Currie Lighthouse King Island*.

New operating awards

The Victorian Local Government Award has been initiated by Amateur Radio Victoria to encourage on air activity based on communicating with and between the 79 local government areas in the State of Victoria, Australia.

The basic rules are that VK3 stations need 40 different municipalities, other VK stations 30 and DX stations 20. Contacts on or after 10 July 2008 are valid for this award, but must not be via a Repeater, IRLP or Echolink.

The other award is the Keith Roget Memorial National Parks Award that existed up until the mid 1980s and is now being updated.

The aim of this award is to encourage portable operation in Victoria's 40 National Parks. More details about this award and the Victorian Local Government Award can be found in the Awards section of the Amateur Radio Victoria website.

Bad apple operators

Positive action is now likely to be taken by the ACMA against the few 'bad apple' operators who disregard the regulations and licence conditions determinations.

When you next hear someone on air who says 'no-one is going to tell me how I use my radio', it appears at long last they will eventually need to adopt an attitude change.

ACMA Manager Compliance and Investigations Section, Allan Major, initiated discussion on concerns about some operating on the amateur bands with the WIA, resulting in a way forward to address them.

The ACMA has a range of actions it can take that include warning notices leading to licence suspension or cancellation, re-testing the competency of licensees, through to criminal prosecution.

Those who instruct amateur radio licence classes or provide mentoring for new licensees may also consider the need for a greater emphasis on operating ethics and standards.

Foundation class

The next weekend training and assessment sessions for the Foundation Licence will be 23/24 August and 20/21 September. Enrolments close soon. For inquiries or to enrol contact Barry Robinson VK3JBR 0428 516 001 or arv@amateurradio.com.au

Membership inquiries

It is easy and affordable to join and support Amateur Radio Victoria. Membership for two years costs \$30 Full or Associate Member and \$25 Concession. Email us for a membership application form or download one from the website.

Geelong Amateur Radio Club The GARC

The Geelong Amateur Radio Club's 60th Anniversary

The Geelong Amateur Radio Club began when a small group of radio enthusiasts gathered at the home of Bill Brownbill in Gheringhap Street on the 7th of June 1948. From the first gathering a committee was formed and a second meeting was arranged by Jack Mathews at the studios of 3GL in James Street, Geelong, after which the call sign VK3ATL was acquired.

The 60th anniversary dinner of the formation of the GARC was held at the Geelong RSL and was well attended by the membership and their partners. The MC for the evening was Barry VK3SY, a past president.

The opening address was given by Ian VK3VIN the GARC club president, in his second term, who welcomed the attendees and during the course of his presentation identified that the GARC would, amongst other community activities, be focussing on the next generation of amateurs sourced in part from local schools

growth, at the rate of around 500 licences per annum taking place. In addition, Michael stated that there were two self evident issues that are paramount to the hobby:

That the WIA is the principle voice of the Australian Radio Clubs and their members with the ACMA in matters relating to the operating conditions we currently enjoy and that it behoves Radio Club members to also take on WIA membership.

Equally it is to be understood the WIA cannot function meaningfully without support from the Radio Clubs and their membership, so there is a logical synergy between the two.



Michael Owen VK3KI

The second guest speaker was David Tilson VK3UR, who was persuaded to talk about his role in the development of communications in Australia slanted towards his activities in the field of amateur radio.

David's list of achievements, covered during his presentation, must be second to none in both its scope and technical content; being at the forefront of RF technology with an impressive collection of firsts in pretty well every aspect of our hobby as identified in last month's VK3 column. This was coupled with a strong indication that this trend will continue.

A lot of the above David put down to the fact that these were mainly accomplished whilst he was of a singular

Tony Collis VK3JGC

persuasion and in order to minimise domestic hassle had also convinced both his parents to get Amateur licences. This latter achievement was somewhat of a double edged sword in respect of who had access to what equipment at any one time!



David Tilson VK3UR

Museums on the air

Earlier, on the anniversary day, the GARC had again established a station operating as VK3ATL at the Geelong Regional Museum, as the guests of Beck Gurrie, the museum director. The GARC and the Geelong Regional Museum have had a long relationship over many years with several club members also being members of the museum.

Principal bands used were 2 metres and 40 metres, where one of the contacts on 7.050 MHz was V12AMW60, the Illawarra Amateur Radio Society, formerly Wollongong Amateur Radio Club, also celebrating the 60th anniversary of their formation in June 1948. This special call sign was made available from the 10th to the 30th of June.

Training

The two Peters – VK3ZAV and VK3APJ – are currently conducting classes at the club house in Storrier Street, East Geelong between 7 and 8 pm on Fridays; all interested parties are welcome.

Ian VK3VIN

The first guest speaker was the President of the WIA Michael Owen VK3KI, who identified that there had been a marked decline in the VK amateur population in the mid 1990s and this had been turned round by the creation of F calls and that there is now, and has been over a number of years, a steady

Geelong Radio and Electronics Society (GRES)

Something for everyone describes our syllabus over the last 3 months. Educational sessions on theory of baluns, were followed by a practical evening where members constructed their own baluns to be eventually incorporated into portable HF antennas. Another evening, organized by Keith VK3AFI was devoted to the theory of AM and FM sidebands.

Members built up a dummy load/power meter at another practical evening. Designed by Drew Diamond this was described in the January/February edition of Amateur Radio 2007. This proved to be a very popular project and we are indebted to John VK3TKH who organized the project, prepared the materials and supplied most of the components.

Practical projects have been an integral part of our syllabus for many years and allow those who do not have a workshop at home to build their own equipment.

In addition to this effort, John VK3TKH has also been out teaching electronics in a local primary school. This follows on from last year when he taught a foundation licence course to pupils in grades five and six at the same school. Three pupils from last year's course passed the foundation licence exam. John has been teaching at the clubrooms and we have some new foundation licensees and one new advanced licence holder. John and Keith VK3AFI will be holding classes at the end of July for all classes of licence.

A regular informative and entertaining guest speaker is Bob Tait VK3XP who every year gives us a talk. This year the topic was the identification and elimination of electrical noise in a car, of particular interest to all who operate mobile on HF. As a result of his talk one member said he was going to modify the mobile installation in his car. Bob is a regular and has been visiting us for many years now. His talks are looked forward to and are always well attended.

Rod VK3AYQ spoke on "Remote Imaging". Details were given on the operation of weather satellites and the equipment necessary to receive the

pictures transmitted on 137 MHz from the orbiting satellites and 1.7 GHz from the geostationary satellite. The talk was illustrated with pictures received from both satellites. Members also visited the home of John VK3PJE where they enjoyed a social evening watching a movie on his impressive home theatre.

Every year our members participate in a WICEN exercise to provide communications for a triathlon event. We provided communications for a kayak section along approximately 30 km of the Barwon River. Operators at each check point communicated directly with the control station at our clubrooms in Belmont.

We also participated in the inaugural Winter VHF/UHF Field Day using the club call sign VK3ANR. Eight members set up a station at Balliang, north of Geelong, in cold, windy, lightly raining weather. They did manage to make some contacts and it was a good learning exercise for newer members to set up a station out in the field.

Visitors are invited to attend our club meetings at 237A High St. Belmont each Thursday at 8 pm local time.

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At right Jim VK3VBC with the quad almost ready to brave the elements.

Below Jim VK3VBC preparing the 2M quad. Note the smart use of the vehicles as windbreaks.

Rod Green VK3AYQ



EMDRC & The Belgrave Lantern Parade for the Winter Solstice, 2008

Carolyn VK3FCAR

Saturday 21st June saw a gathering of intrepid and optimistic members of the club assemble at 3.30 pm prepared for wind, rain and mayhem as the longest night of 2008 descended on the main drag in Belgrave.

Alongside the festival committee co-ordinators, David VK3DLR set up his trestle tables and folding chairs in front of "Belgraphic" and "The Wicked Lady". Radio transceivers and upside down aerials were set up beside glowing plastic tubes and candles.

Technology met Celtic celebration. VK3s and QSLs blended with dancing fairies, fire-eaters and drumbeats.

Local police and various council and CFA teams shut down the streets and redirected traffic with only a car chase and a few minor bingles to mar their progress.

Our major role was to provide communications for the festival organisers and that aim was achieved. It was a learning experience for everyone as well as a great deal of fun. Our thanks go to the selfless club members who couldn't even see the parade while maintaining assigned posts. Those who saw the parade thoroughly enjoyed the variety of lanterns lighting the faces of old and young with a cheerful glow.

Perhaps by divine intervention or the magic of the "wicked ladies", the rain held off during the parade. But throughout it all, David VK3DLR plied the airwaves with unimpaired good humour as he passed messages to and fro despite loud music, singing and competing demands.

While some may say they preferred a warm fire and mulled wine to braving the elements of the winter solstice, those who participated enjoyed the parade and still had time for garlic pizzas and bubbly.

Happy Winter Solstice, 2008.

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Photo 1: Bill VK3FBIL points out the club banner outside "The Wicked Lady".



Photo 2: A few of the eager participants from the EMDRC - (L to R) John VK3JRB, Bill VK3FBIL, Joe VK3FJBC, Mark VK3FMGF, David VK3DLR, Jim VK3AMN, Catherine (VK3FCJD's daughter), Michelle VK3FEAT, Chris VK3FCJD and Robert VK3LOL.

S.A.D.A.R.C SHEPPARTON HAMFEST 14th Sept 2008 St. Augustine's Church Hall Orr St. Shepparton (usual place)

New and used amateur and electronic gear for sale by commercial and private traders
Traders access from 8 am, doors open to public at 10 am.
Entry fee \$5. Children under 15 free.
Trestles \$10.
Early bookings would be appreciated.

Contact Daryl Hitchcock VK3KL phone 03 58711444, or e-mail: churri@netspace.net.au

Food available as usual on site.

Call on the club 2 m repeater VK3RGV 146.650 MHz for directions

VK4

Don Bryant VK4FNQA

News from Central Queensland

Wally Douglas Memorial Charity Ride

The Breakaway Horse Riders Club Inc in conjunction with Nurse of the Year entrant Katie Edwards announce that the Wally Douglas Memorial Charity Ride will be held in support of the Call to Arms campaign for Men's Cancer Saturday 23 August, 2008.

The ride will start from Mia Mia Creek and end at Denison Creek Station near the Retreat Hotel with an evening BBQ dinner from 6pm to help Katie's fund raising efforts.

Some background

Wally Douglas VK4AIV sadly passed away this year from cancer. Wally had been a member of the Mackay Amateur Radio Club since 1979.

In 1989 Wally and members of the radio club joined forces with Breakaway Horse Riders club to provide radio communications for the first endurance ride held by the club at Oakdale Station. This partnership proved to be long term with Wally thoroughly enjoying going out in the bush where he enjoyed the quietness.

Wally has been an asset and friend to both Breakaway and Pioneer Valley horse clubs. He successfully organised the radio communications for three State Championships. We would like

to honour Wally's memory by hosting this Charity ride.

So this is a call to all riders and radio amateurs, who can make the event to attend, remember Wally and help with fund raising to aid the fight against cancer.

Catering Details

Saturday Lunch: Sausage Sizzle (\$1.50), cold drinks, tea and coffee at Tallyho Creek (funds to go to Katie).

Saturday BBQ Dinner: 6pm Katie will also be putting on great Steak Burgers (\$5.00) to help with her fundraising.

Camping Details

We encourage you to camp Saturday night at Denison Creek Station, behind the Retreat Hotel, and support Katie's fund raising efforts. Hot showers and toilets are available.

Sourced from information provided by George Glendinning VK4AJL and the Breakaway Horse Riders Club Inc.

George VK4AJL can be contacted by E-mail addressed to: vk4ajl@wia.org.au

'News from North Queensland' from 6th July 2008

Editor's Note:

Don has indicated that he has received very little in the way of contributions from clubs. Therefore he will not continue to collate this column - nil input means nil output.

SUNFEST 2008



Doors Open 0900 hrs

**Saturday
13 September
2008**

(Sellers from 0700 hrs)

at

Woombye School of Arts

Blackall Street, Woombye (Qld Map 66 F12)

Reservations for table space: Contact:

Richard VK4YRP

(07) 5492 9898.

Email:

randwphilp@bigpond.com

VK5

inception, so he could explain clearly how they worked, what they each did and the differences between them. He also could tell us how these machines had changed and improved over the years.

There were many questions at the end of the talk, indicating how interesting we all found the subject.

Whether we want to or not, we all either have been or will be involved with one or other (or all) of these modern tools of medicine.

Our next meeting on the third Thursday of the month will be a display of members' equipment with several members giving a brief talk about their devices.

This is always an interesting meeting and usually the source of new ideas.

Visitors are welcome. For more information please contact the President John VK5EMI or the Secretary David VK5AMK (both are QTH the callbook).

Adelaide Hills Amateur Radio Society

Christine Taylor VK5CTY

At our meeting in June we heard a very interesting talk by Andrew VK5ZUC all about those magic hospital machines we "know" about but do not really understand.

Andrew has been involved with echocardiographs, MRI machines and angiography almost since their

Keith Bainbridge VK6XH
vk6xh@wia.org.au

This is my second attempt at these notes so hopefully things will eventually fall into place. Little input from the groups so I will provide some up to date news.

The NCRG Hamfest will have taken place on August 3rd by the time you read this. Hopefully for all those concerned it will have been a great day out. The location was the Cyril Jackson Sports Centre, Fisher Street, Ashfield.

At present the traders list reads Vertex, City Online, Bushcomm, Tet Emtron, Outbacker, Tower Communications / Icom, AllComm and others.

The special attraction was a visit from the Gravity Centre, located near Gingin, and a source of interesting astronomical and astrophysical interest. There was a display of telescopes and associated equipment provided by Camera House Midland. Many Amateurs display considerable interest in astronomy. I personally would like to try out radio astronomy 'one day'.

Many traders including Icom, Vertex, Quansheng, Vibroplex, Terlin, Bushcomm and others have promised excellent raffle prizes and a full list of winners will appear here in due course.

The Hills Amateur Radio Group's (HARG) 80 metre on-air Morse generator is operational and transmitting on 3.686 MHz from approximately 1900 to 2100 WST. A morning timeslot may also be activated between 0600 and 0800 WST if there is enough interest.

The callsign is VK6AHR, the Group's callsign and it is transmitting CW text at varying speeds, so look out for the transmissions. Reception reports are welcome to hargsec@iinet.net.au The HARG will also be active in the RD contest.

I received a report from Eddie VK6ZSE, our VK6 NTAC representative and WIA Director regarding the possible linking to Albany for coverage on the News West repeater network. Apparently the Albany members feel it could demand a large commitment of resources to provide an RF link so Rob VK6JRC is investigating the use of EchoLink or IRLP to bring the news on VHF to the South. More news when it becomes available.

The contest season is upon us and all keen contestants are fine tuning their equipment to get the most out of it in these lean RF times. The weekend of 12/13 July saw the NCRG Club premises being used by Bernd VK6AA/ VK2IA in a serious CW attempt on the IARU Contest. Bernd has used the club premises before and was extremely successful. The going was hard but he really enjoyed himself. Now there is a much better selection of antennas for

him to choose from so hopefully he will be up there with the best again.

The RD Contest will also be upon us, and I am sure VK6 will put the usual massive effort into winning it again! It is the contest that galvanises amateurs here into action. I do not recognise many of the callsigns on air that weekend, I am sure they hibernate for the rest of the year. It would be nice to see them in the VHF contests as well. I would like to hear from the contestants in VK6,



Photo 1: Bernd VK2IA explaining how to contest



Photo 2: The NCRG clubhouse and antenna farm – very impressive

Amateur Radio

EDITORIAL.

W.I.A. (Vic.).

President (Geo. Thompson Esq.) Introduces "Amateur Radio."

With this, the first issue of "Amateur Radio," a long-felt want is being satisfied. It is a far cry from our old Magazine which appeared in 1921 to the present time, and during the intervening years, many and varied attempts have been made to offer the army of radio enthusiasts in Australia something worth while, which would be of real interest, value and help. It is the intention of the magazine committee, the council, and all concerned, to see that every section of our vast radio community is catered for in these pages. With that object in view, pithy news of general interest will regularly find space in its pages. To all members of the W.I.A., especially those of the Victorian Division, the R.A.A.F.W. Reserve, and all radio enthusiasts, we confidently look for wholehearted support in this undertaking.

This magazine is the official organ of the Victorian Division, every financial member of which will receive a copy post free, and every Ham should see that they receive one. We have in Victoria approximately 300 members and three affiliated clubs, but there are quite a number of holders of the A.O.P.C. who have not yet enrolled. In view of the fact that the officials of the Institute do an enormous amount of work voluntarily (not only in the interests of our members but also of the non-members), it is not in keeping with the Ham spirit to take a share of the advantages which the other fellows' fees and energy provide. Our ranks are open to anyone who is genuinely interested in the science of Wireless, irrespective of their knowledge of the subject, and a hearty welcome is assured to all members with a definite promise of assistance and help, in any desired direction within our scope.

The country experimenter will now be in closer touch with the city enthusiasts and will be kept informed of all Institute activities right up to the minute.

The Institute, in a general sense, is divided into four sections (with a possible fifth to be formed later). Of these, the chief is, of course, the Executive, known as the Council,

which consists of the President, Secretary, Treasurer and ten full members elected annually, whose duty it is to shape the destiny of the Division, control its funds and do all such acts and deeds which are essential for the successful functioning of the whole, within the limits of the constitution.

The **Short Wave Group**, which is the latest section, is devoted to the Experimental side of short wave transmitting and receiving, and much good work is being done by this very enthusiastic body.

The **"Key"** Section, probably the largest numerically of all the sections, is a very active group whose work largely constitutes filling the atmosphere with "dits and dahs," burning much midnight Yallourn energy, and in general communication with the uttermost ends of the earth, with as low power as possible. It is largely from this group that the Royal Australian Air Force Wireless Reserve was recruited, and so successful has been the experiment, that it has now been officially accepted as an indispensable unit of our country's Defence Forces. The **"Key"** Section is largely responsible, in conjunction with other Amateurs the world over, for the successful pioneering of the many frequencies or wavelengths which were at one time considered impossible, but which are now in general use.

The **Telephone Section**, which is undoubtedly the best known to the general body of listeners, is also very live, energetic and enthusiastic. Their work generally needs no amplification—the very high standard of their transmissions, excellent arrangement of programmes from a purely listener's viewpoint and the high entertainment value of their labours, are a real asset not only to the W.I.A., but to the Government and the Radio Trade generally. There are 22 Country and 24 Metropolitan Amateur Stations actively engaged in entertaining listeners during non-broadcast hours on week nights and Sundays. In many cases in the country, they provide the only programmes that can be received decently owing to atmospheric conditions, particularly during daylight.

what are your interests and aspirations; do you want others to join you in your endeavours?

I have been liaising with Don VK6HK, Phil Casper VK6ZKO, and others about the possibility of erecting a new 144 MHz beacon at the NCRG premises in Whiteman Park. The idea is to mount 4 x 5 element Yagis on a 25 metre tower, horizontally polarised and stacked vertically, pointing at South Africa and Reunion Island.

There is an existing beacon, VK6RBU, down south that was set up with this in mind, it has been off the air for some time. The new proposal is for a dedicated beacon with internet reporting to several club members who would do a 'mad dash' to the clubhouse to make the first 144 MHz trans Indian Ocean contact. Pie in the sky some may say, but unless it is attempted it will never occur.

At the other end there is a tremendous support from the ZS VHF group and keen amateurs on Reunion Island. Any assistance from interested amateurs in any State would be warmly welcomed. A six metre beacon could also be set up if there was sufficient interest and support from NCRG and other amateurs.

I would also like to hear from the F calls: what do you want from the groups, clubs and so on in this state of ours? There have not been too many of you at NCRG meetings I know, but you will be made most welcome.

Nigel VK6KHD reports the Lighthouse activity will be going ahead on the 16-17th August with Wally VK6YS at Cape Leeuwin with the callsign VK6CLL, and Nigel VK6KHD, Jane VK6FJP and Bernard VK6FBRB at Cape Naturaliste using the callsign VK6CNL; we wish them the best of luck!

I have just downloaded the October 1933 first edition of *AR* magazine as scanned and presented by Will VK6UU, what an excellent job he has done. I wish him every success in the future documentation of the history of Amateur Radio in Australia and I will be ordering my copies as they become available.

That is it for this month: good DX and hope you do well in the RD.

73 Keith

Justin Giles-Clark, VK7TW

Email: vk7tw@wia.org.au Regional Web Site: reast.asn.au

Central Highlands of Tasmania HAMFEST

The date for the biannual Ham Fest has been announced and it is on Saturday December 6, 2008 starting at 10 am.

It will be held in the community centre at Miena next to the Great Lake in central Tasmania. Major traders have again agreed to attend and the entry fee will be \$5.00 per person or family. There will be a lucky door prize, free tea and coffee and soft drinks at reasonable cost. Inexpensive BBQ type food will be available between 11.30 am and 1.00 pm.

There will be space for pre-loved equipment for sale and this year even a white board to advertise other equipment along with some help from the Master of Ceremonies on the day.

As many previous attendees will attest, the facilities are second to none and very well heated... HIIH! With fuel prices the way they are, car pooling will be the go. So, get together with a group of people and make your way up to Miena for a great day of amateur radio.

See you there!

WICEN Tasmania (South)

June saw WTS members gather at The Lea Scout Camp for a field weekend of activities which included: HF, 2 m, 70 cm, APRS and NVIS stations, dual band dipole construction with Gary VK7JGD, back packable APRS trackers with Roger VK7ARN and Peter VK7KPC.

John VK7ZZ provided electronic slides of his recent voyage from Chile to Antarctic and the excellent DVD from James Brooks 9V1YC on the Kerguelen 2005 FT5XO DXpedition.

Sunday saw Gary's video of the extraction of the rare grid square team from Cape Hauy, an NVIS presentation, APRS activation and also a Radio Mobile propagation mapping software demo. All in all, a full weekend of very interesting activities.

Contests, News and Rebroadcasters

It was great to see Ray VK7VKV and Vince VK7VH come equal second with their multi-operator station totalling 2459 points in the 2007 VK Trans-Tasman 80 m Contest. Congratulations Ray and Vince.

Did you know that the VK7 Regional News broadcast is available on both the web and via email along with the normal on-air broadcast? Take a look at <http://reast.asn.au/news.php> for the web version along with archives of previous broadcasts.

If you would like to receive the broadcast via email each week then send a blank email to: vk7/regionalnews-subscribe@yahoogroups.com and follow the instructions.

A big thank you to Trevor Spargo VK7TS who has been a long standing 40 m rebroadcast operator for the VK7 Regional News broadcast. We are always looking for rebroadcasters on a wide range of frequencies (take a look at the directory on the last page of this magazine).

If you listen to the broadcast on a Sunday morning and would like to try rebroadcasting only once a month then please contact me.

Northern Tasmania Amateur Radio Club

The June NTARC meeting saw Norm VK7TAC showing his very impressive collection of QSL cards, as well as his HF equipment which included a very impressive Icom IC-7800 and a linear amplifier.

In the last AR we mentioned Bryn VK7FBAW and his involvement as a base radio operator for the Tamar Sea Rescue Association. Well Bryn even broadcasts severe weather warnings to amateurs on VK7RAA, and NTARC would like to say a big 'thank you' to Bryn for his time and dedication to this task.

North West Tasmania Amateur Radio Interest Group

The high quality nightly broadcasts produced by Tony VK7AX have returned to the 2 m repeater VK7RAA on Mt Barrow along with the NW repeaters. Take a listen from 2000 (8 pm) for a different program each night.

Lighthouse weekend planning is well under way for NW TARIG with Winston VK7EM, Wayne VK7FWAY and Eric VK7FEJE planning to operate from the Bluff Lighthouse at Devonport and the Table Cape Light at Wynyard. Anyone interested in taking part or assisting with this activity, should contact either Winston, Wayne or Eric.

Radio and Electronics Association of Southern Tasmania

Rex VK7MO and the author presented a paper to GippsTech 2008 on their Over the Horizon Optical Communications experimentation which was well received.

Due to a late cancellation of REAST's July presentation the club got a sneak preview of the presentation a few days before GippsTech... HIIH!

Due to the WICEN South team being involved with an Endurance Ride for most of the week end of JOTA/JOTI (18/19 October), REAST is looking for radio amateurs to help out for this very special 100th year of Scouting in Australia JOTA.

Please let Gavin VK7HGO know if you can help by phoning 03 62724437 or mobile 0407 724 431 or call him on VK7RAD/RHT or RAF.

ar

Contest Calendar for August 2008 – October 2008

August	2	TARA Grid Dip	PSK/RTTY
	2	Waitakere (NZART) Sprint	CW
	2/3	10-10 International QSO Party	SSB
	9/10	Worked All Europe	CW
	16/17	Remembrance Day Contest	CW/SSB/FM
	16/17	Keymen's Club of Japan Contest	CW
	30/31	ALARA Contest	CW/SSB
September	6	ARDF Championship (80 m)	CW
	6/7	All Asia Contest	SSB
	6/7	RSGB SSB Field Day	SSB
	6/7	Region 1 Field Day	SSB
	13/14	Worked All Europe	SSB
	20/21	SRT (Italian) HF Contest	SSB
	27/28	CQWW RTTY DX Contest	RTTY
October	4/5	Oceania DX Contest	SSB
	11/12	Oceania DX Contest	CW
	18/19	JARTS WW RTTY	RTTY
	18/19	Worked All Germany Contest	CW/SSB
	25/26	CQWW DX Contest	SSB
	25/26	ARRL International EME Competition	CW/SSB
	25/26	CQWW SWL Challenge	SSB

Welcome to this month's Contest Column.

OCDX Contest 2007 Results

As mentioned in last month's column, the Lockyer Valley Radio and Electronics Club VK4WIL achieved the highest score from Oceania for the M/M Phone category in the 2007 Oceania DX Contest. A superb effort! VK featured even more in the results however, with a good number of VKs appearing in the logs around the world.

John Loftus VK4EMM has repeated his 2006 feat of leading Oceania in both the PHONE and CW Single-Op All Band categories. John has come a long way in honing his station and skills from originally entering the contest in 1995 using a setup in the back of the family car. Well done John!

Overall, participation was down in

2007 with approximately 10 percent fewer logs compared to 2006. The reduction appears to have been mainly due to poorer than usual propagation between Oceania and Europe over the SSB weekend, but despite the depressed conditions, the contest never fails to deliver the goods as regards good fun and a bit of inter-VK competition. There is a VKCC sponsored plaque usually awarded (The Australia Club Plaque) but it is not being awarded this year as there were no VK clubs meeting the eligibility criteria. The criteria require an eligible club to have at least five members participating and with each participant making a minimum of 50 valid QSOs. Surely VK clubs could assemble sufficient interest to gather suitable teams for this award in the 2008 contest?

It's great to see foundation licence callsigns in the listing. Andre VK3FASW entered the contest this year – his first contest ever! A rookie section would

be a good addition to the award listing maybe?

Tony VK3TZ had an unexpected 'semi-multi operator' event late on Saturday night, with his neighbour wishing to speak to Tony about his burglar alarm system going off every time he transmitted on 20 m. The request to converse came in the form of walloping the living daylights out of Tony's front door. A gentleman to the core, Tony refrained from transmitting on any other bands for the sake of neighbourly relations.

Operating from VK4WIL, I can testify to the somewhat lacklustre band conditions during the contest. I operated on 40 m and 15 m, but found 15 m to be very hard work indeed – even with a 5 element beam at a reasonable height and QRO power. Many of the QSOs were very weak indeed and required a lot of concentration to dig stations out of the noise. This is what contesting is all about though – pushing the limits of the

equipment and the operator. VK4WIL won't be operating in the 2008 contest however due to family commitments taking the hosts away from the operating chair. VK6ANC had a hard time of it in WA, with conditions even more dire than us 'lucky' few in the east.

SSB - VK Only

Callsign	Category	QSOs	Score
VK4EMM	Single - Op All Band	683	1079364
VK7GN	Single - Op All Band	405	471410
VK3YXC	Single - Op All Band	348	387846
VK3TZ	Single - Op All Band	380	304634
VK8NSB	Single - Op All Band	347	156404
VK4BUI	Single - Op All Band	196	95160
VK2FHN	Single - Op All Band	200	76544
VK4NEF	Single - Op All Band	190	73304
VK3AVV	Single - Op All Band	127	29234
VK2BJ	Single - Op All Band	109	24893
VK2GR	Single - Op All Band	57	18920
VK4ATH	Single - Op All Band	75	15410
VK7WPX	Single - Op All Band	62	12210
VK7ARN	Single - Op All Band	62	10560
VK3AAK	Single - Op All Band	32	8100
VK3KE	Single - Op All Band	38	5472
VK2HBG	Single - Op All Band	51	5064
VK7BEN	Single - Op All Band	40	4988
VK6LXU	Single - Op All Band	36	4896
VK3FASW	Single - Op All Band	39	4600
VK2XF	Single - Op All Band	40	4060
VK3GRS	Single - Op All Band	35	3700
VK5ZQV	Single - Op All Band	31	3080
VK2ZQX	Single - Op All Band	25	2805
VK1XYZ	Single - Op All Band	20	2210
VK4DX	Single - Op All Band	22	1760
VK5UE	Single - Op All Band	17	1425
VK4TGL	Single - Op All Band	14	616
VK7ZGK	Single - Op All Band	16	176
VK2KDP	Single - Op All Band	8	168
VK2WL	Single - Op All Band	10	144
VK6ATU	Single - Op All Band	6	144
VK3ZGP	Single - Op All Band	2	30
VK3FNB	Single - Op 40 m	10	400
VK5MAV	Single - Op 20 m	26	572
VK6ANC	Multi - One All Band	446	424278
VK3FRC	Multi - One All Band	127	49932
VK4WIL	Multi - Multi All Band	1177	2524200
VK2ATZ	Multi - Multi All Band	375	431730
VK3SAT	Multi - Multi All Band	134	54760
VK3ER	Multi - Multi All Band	53	6698

Operators of Multi-Multi Stations

VK2ATZ	= VK2KRM VK2JED VK2AEA
VK3ER	= VK3WWW VK3AMN VK3LOZ VK3XGT VK3VOL
VK3FRC	= VK3GB VK3EW VK3MMM
VK3SAT	= VK3ZPF VK3FAWB

VK4WIL = VK4ZD VK4KYL VK4SN VK4VCC VK4TI
VK4NDX VK4HAM VK4BAA
VK6ANC = VK6NU VK6XH VK6HX VK6APK VK6TT
VK6WPX VK6HRC VK6YEL

CW - VK Only

Callsign	Category	QSOs	Score
VK4EMM	Single - Op All Band	1192	3287315
VK7GN	Single - Op All Band	741	1453896
VK2AEA	Single - Op All Band	720	1324452
VK3TZ	Single - Op All Band	508	804487
VK2AYD	Single - Op All Band	447	473396
VK4XY	Single - Op All Band	416	437762
VK4BUI	Single - Op All Band	356	312674
VK4SN	Single - Op All Band	347	248948
VK2BJ	Single - Op All Band	264	226458
VK6ZH	Single - Op All Band	408	208453
VK2NU	Single - Op All Band	229	166452
VK2GR	Single - Op All Band	155	116816
VK3TDX	Single - Op All Band	75	13080
VK4TT	Single - Op All Band	69	12532
VK5MAV	Single - Op All Band	57	3250
VK2WL	Single - Op All Band	16	915
VK5ZQV	Single - Op All Band	11	528
VK4AN	Single - Op 80 m	74	32560
VK4BAA	Single - Op 40 m	70	18900
VK2AR	Single - Op 40 m	69	18285
VK4DX	Single - Op 40 m	66	12210
VK6DU	Single - Op 40 m	46	9200
VK5DC	Single - Op 40 m	25	2250
VK2CCC	Single - Op 40 m	3	45
VK2FHN	Checklog All Band	11	594

Skimmer Revisited

All sports draw a line and ban certain technologies or activities when it is time to preserve the basic nature of the sport. There are numerous examples in sport of technology which is considered inappropriate and therefore placed outside the rules. Examples such as Grand Prix motor racing, yachting, or many disciplines within athletics. Within ham radio contesting we have already considered packet cluster to be sufficiently different from straight single-op that it has its own section within the contest scoring system or it tends to be bracketed with multi-op. Those whose satisfaction comes from making software work will always do so, and they are very welcome. There is room for all. They simply enjoy different challenges. We just need to consider the creation of category rules to separate users from non-users.

There are those who believe that Skimmer will diminish the skills that have always been integral to the sport. Perhaps some CW Contesters believe that the line should be drawn and CW Contesting should not be turned into an activity that is based even more on how well equipped your station is and how many rigs you can sequence to pick off every signal that can be copied by a computer.

In radio contesting we have absorbed various new technologies. Some of this absorption has been part of the radio circuit: better antennas that are not only bigger and

higher but better use of terrain data; Fast band change radios and linear amplifiers; Improved auto selection of antenna to band and easier to use radios (allegedly).

Other technologies have improved the human to radio interface such as: Computer logging; computer control of radios and rotators directly to the computer. Yet other technologies have assisted the operator in acquiring information about stations to work: callsign check lists in logging programmes; automatic identification of new multipliers and dups in logging programmes; packet/internet spotting and now Skimmer.

For most people in contesting the urge to win is only part and often quite a small part of the fun. The fun is in running a pile-up, finding the last multiplier for a clean sweep of a band, finding a new country, or possibly catching an opening that the other competitors missed. In other words maximizing the cards you are dealt. With all the help from this operational technology the single op in the future may not have the apparent stress of worrying whether he should have moved to 40 m an hour ago, or whether there may be an opening on 10 m as 15 m is sounding good. They will miss the pleasure of "knowing" now is the time to move and realizing you got it right. They will miss a lot of the pleasure, fun and challenge that radio contesting has given many. I believe that is what is at the heart of radio contesting, not just winning, having fun striving, pushing yourself, and sometimes getting it right! The more that technology is used to facilitate that particular part of the contestants operating skill-set the less attractive contesting might be considered to become for some current participants at least.

So, what is 'Assisted'? It is unlikely that the contesting community will be able to agree what "Assisted" means in this context, so it's probably best for the term to be defined by the sponsors and organisers themselves. However, the requirement for the category has quite a bit of history as it was an attempt to cope with packet networks while not changing rules too much and losing comparability of past contesting records. It might be considered questionable to persist with using the word as a major rules segmentation device. Maybe the way

forward is to have a section along the lines of 'Single Operator Open' to provide for the potential use of technology. This would encompass one operator, one transmitted signal, and one location, but as much technology as you could shake a stick at, full legal RF power and no limit on antenna hardware. All other categories then become a dilution or alteration of the basic 'section' to allow for QRP, antenna provision, multiple operators etc.

Calling all Luddites!

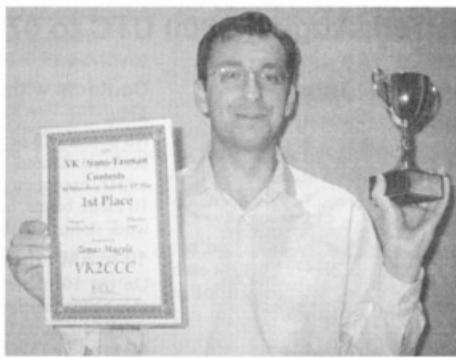
If, after a few generous snorts of Talisker, one wishes to be able to be whisked away to a perceived perfect world, do you wish you could turn the clock back to the time when the person who won the contest was the most skilled radio operator?

Do you feel that nowadays, the person who wins the contest is the one who has the biggest amp; the biggest antennas; the largest computing power and is a touch typist located close to the equator in a semi-rare location?

Do you find yourself craving to get back to the good old days where computers are not invented yet; Morse code has to be manually sent and received; the DX cluster or any of its derivatives are a twinkle in their inventor's eye and spotting networks are forbidden?

You might not be alone, but the reality of it is that the technology is here to stay and cannot be 'uninvented' no matter how hard we try to ignore it. People will use it and drive the technology forward for revisions and people will work hard to upgrade systems to make it faster, better facilities and more accurate. It is, however, within our power to recognise that technology might change the

80 metres VK/ trans-Tasman Contests



The Winner of the 2008 80 Metres VK/ trans-Tasman Contests is Dr Tomas Magyla, from Hornsby Heights, NSW.

This was his first attempt at a VK/ trans-Tasman Contest.

He received the 80 m Over-all Winner's trophy, and certificates for "1st 80 m Phone", and "1st VK".

Bruce Renn VK3JWZ - Contest Manager

approach for future contesters and that contest sponsors should accommodate and adapt as considered necessary. Time will tell.

While I wait for things to happen, I have an appointment next week to get some surgery to add a couple of hands for easier typing and an extra pair of eyes off-set at an angle so I can see all my computer screens at the same time. My optician is working on a heads-up display for my glasses so I can dispense with the screens, with a direct neuron-data feed into my febrile brain. A mere thought of a competitor's demise would bring a huge Faraday Cage over their antenna farm (after I have worked them as a multiplier) and allow me to carry on filling my log while they CQ into oblivion.

Ahhh - contesting - the sport of gentlemen. And ladies of course!

If you have any contest related material for inclusion within the column, topics that you would like covered or even some experiences and pictures you would like to share, then please feel free to get in touch via vk4baa@wia.org.au. See you on the bands.

73 de VK4BAA Phil Smeaton

Remembrance Day Contest

Sat 16th August 0800 UTC to 0759 UTC Sun 17th August 2008

Contest Rules

Sections

- (a) High Frequency for operation on bands below 50 MHz;
- (b) Very High Frequency for operation on and above 50 MHz;

Operators may enter each section, but separate logs must be submitted for each section and for each Callsign used on that section by the operator.

Categories

- (a) Single Operator; and
- (b) Multi-operator.

Sub Sections

- (a) Transmitting Phone (FM, SSB);
- (b) Transmitting CW (CW); **
- (c) Transmitting Open (a) and (b);
- (d) Receiving (a), (b) or (c).

**Note: CW in this context means CW only; any other digital modes such as Packet, RTTY, AMTOR, PSK31, etc are specifically excluded from the contest.

Location

All amateurs licensed in Australia, and not physically within VK/P29/ZL as VKs outside VK may enter the contest, whether their stations are fixed, portable or mobile. See Rule 16.

Crossband

Cross-band and/or cross-mode contacts are not permitted.

IRLP & Echolink

Operation via any means other than those which use direct radio transmissions is banned. This includes all means such as IRLP or Echolink, which rely on contact via the internet.

Satellites

Contacts via satellites are also not allowed for scoring purposes.

How To Call In The Contest

Call "CQ RD", "CQ CONTEST" or "CQ TEST".

Duration Between Contacts

On ALL bands, stations may be contacted at intervals of not less than two hours since the previous contact on that band and mode.

Contacts within same call area

No points will be awarded for contacts between stations in the same call area on HF, except on the 160 metre and the 10 metre bands, on which entrants may work stations in the same call area.

10 m FM mode

On the 10 metre band, contacts may also be made using the FM mode, using simplex only, on frequencies above 29.0 MHz only. This will be considered a different mode for scoring purposes, so an SSB or CW contact could immediately be made with the same station below 29.0 MHz for an additional score.

50 MHz and above

On 50 MHz and above, the same station in any call area may be worked using any of the modes listed at intervals of not less than two hours since the previous contact on that band and mode.

VHF Category

For the VHF category, up to three contacts may be made with the same station consecutively on each band, but must be made using the different allowable modes of CW, SSB and FM. However, the different modes must be within the frequency ranges stated in the text descriptions of the latest Call Book as 'mode' only. For example, on the two metre band, RD Contest CW contacts may only be made in the range 144.050 to 144.100 MHz. SSB contacts are restricted to 144.100 to 144.400, while FM contacts must be above 146.000 MHz. The national simplex calling channels (146.500 MHz on the two metre band), and the frequencies either side thereof, excluding recognised repeater frequencies, are the suggested frequencies. When changing modes, entrants must also change frequency.

Single and Multi Operator Stations

Both single and multi-operator entries are permitted. To be eligible as a single operator, one person must perform all operating and logging activities without assistance other than computer logging.

using his or her own callsign. More than one person can use the same station and remain a single operator providing that each uses his or her own callsign, submits a separate log under that callsign and does not receive operating or logging assistance in any way other than computer logging during the contest.

Using more than one callsign

Holders of more than one licence or callsign MUST submit a separate entry for each callsign used.

Multi Operator Stations

Multi-operator stations are only allowed one transmitter per band/mode at any one time. Simultaneous transmissions on different bands are permitted. Simultaneous transmissions on the same band but using different modes are permitted. Any large multi-operator stations may find it more convenient to use separate band and/or mode logs.

Automated operation

Automated operation is not permitted. The operator must have physical control of the station for each contact. However CW and voice keyers are permitted, although the use of computers is restricted to logging purposes only.

Valid contacts

For a contact to be valid, a three-digit serial number commencing at 001 and incrementing by one for each successive contact must be exchanged between stations making the contact. (RS/RST reporting is not required, but if given should be an accurate appraisal of the signal).

Logs

Separate logs are required for entrants competing in both HF and VHF sections, although all allowable modes can be contained within each log.

Contacts via repeater or satellite

Contacts via repeater, satellite or relay are not permitted for scoring purposes. Contacts may be arranged through a repeater, although contact numbers may not be aired there. Operation on

repeater frequencies in simplex is not permitted.

Receiving Section Rules

This section is open to all SWLs in Australia, Papua New Guinea and New Zealand. Licensed operators may enter this section but this will make them ineligible to also compete in the Transmitting sections.

Rules are the same as for the Transmitting Section. The only double points will apply to ALL received CW contacts, and contacts received between 01:00 and 06:00.

Only completed contacts may be logged, it is not permissible to log a station calling CQ.

Contest Scoring

- On 160 metres two points per completed valid contact.
- On 23 cm or higher bands two points per completed valid contact;
- On all other bands one point;
- On CW irrespective of band, double points.

All scores obtained between the entrant's local time hours of 0100 and 0600 are doubled. If working into an area where the time is outside those hours, the score is doubled only for the station whose local time is 0100 to 0600 hours.

Submitting Your Log

Logs should be in the format shown in the sample available on the WIA web site and accompanied by a Summary Sheet showing callsign; name; address; category; sub sections ; for multi-operator stations a list of the operators; total score; declaration: I hereby certify that I have operated in accordance with the rules and spirit of the contest; signed (postal mail only); date. Please supply a contact telephone number if possible.

Entrants operating on both HF and VHF are required to submit separate logs and summary sheets for both categories. Separate serial numbers for HF and VHF operation. Logs must be serial numbered sequentially on any band within the High Frequency for operation on bands below 50 MHz; Logs must be serial numbered sequentially on any band within the Very High Frequency for operation on and above 50 MHz; VK entrants temporarily operating outside their allocated call area, including those outside continental

Australia as defined for DXCC, can elect to have their points credited to their home State by making a statement to that effect on their summary sheet(s).

Logs can be submitted by electronic mail or postal mail:

By mail, send logs and summary sheets to: RD Contest Manager. Endorse the front of the envelope "Remembrance Day Contest".

Peter Harding VK4OD

40 Centaurus Cres
Regents Park,
QLD 4118.

**E-mail, PLAIN TEXT logs only
may be sent to
rdlogs@wia.org.au**

Electronic Logging is preferred but by no means mandatory. Those entrants with a suitable PC may wish to consider it for this year's contest. By using one of these programs, the file that is emailed to me can be imported easily into the scoring database program. Links for these programs are listed below. I have tried and tested them all and with the assistance of all the creators, they have rewritten parts of their program to assist scoring.

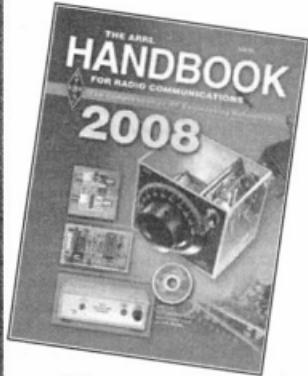
On completion of the contest you can email the VK?XXXX.csv, which is a comma delimited file format be, which can be imported into our database. See Software download links below.

In all cases, logs must be received by last mail on Monday 10th September, 2007. Late entries will not be eligible. Electronically sent logs will be returned with a courtesy note, also Snail Mail will be returned unopened.

If you are sending your logs by electronic means, I would recommend that you set the flag to request "confirmation of receipt" and "when the file is read". This way you will receive two confirmation messages. If you do not receive either return message please send me an inquiry mail, for users of Snail Mail send a self addressed envelope with the sample reply form to request a receipt for your paper log, the "Reply Form" is available for download from the WIA web site.

HOWEVER in all circumstances the rule above WILL STILL APPLY. So get the logs in early.

Amateur Radio Bookshop



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members*

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on-line @*

[http://www.wia.org.au/
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Area from the home page.*

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Office: WIA National Office
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Fax 03 9523-8191
bookshop@wia.org.au

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ALARA

Christine Taylor VK5CTY

This month's Contests

Are you ready to participate in the Remembrance Day Contest and also in the ALARA Contest? I hope you enjoy them both.

Listen to the opening of the Contest to hear some reasons we hold the RD Contest, and why we hold it on the weekend closest to the date WWII ended. It is a special way amateurs can acknowledge the debt we owe to our service men and women, and for us, the debt we owe to all the amateurs who used their skills to help us win the war.

Be sure to keep a log of your contacts! Make a copy of the RD log, ready to send to the Contest manager! Details of how you can send your log in, and the addresses are all listed in the Contest rules in this month's *Amateur Radio*.

The rules and log submission details for the ALARA Contest were in the July issue. The contrast between the rush, rush, rush for contacts in the RD and the more leisurely, time for a chat, aspect of

the ALARA Contest is important. That is why we can make multiple contacts on the same band in one Contest and are not allowed to do that in the other. Both are the kind of rules you will find in other Contests throughout the year.

Some people really love contesting. They can probably find a Contest, somewhere in the world each weekend of the year. This is a great way to "shake hands" with someone in another country, and to maybe gain another country as you work toward your DXCC award.

Others only join in one or two Contests a year, but still find they meet new people each year and renew an acquaintance from another year. There are many different ways to enjoy amateur radio.

The ALARA Award

Every year, associated with the ALARA Contest I urge YLs and OMs to apply for the ALARA Award certificate. It is an attractive addition to your "brag wall" where you pin your Certificate of Proficiency in your shack, and it is not difficult to make the right collection of contacts to gain the certificate.

The cost for the certificate is only A\$5 or four IRC (International Reply Coupons). IRCs can be bought from a Post Office and have been the standard exchange system between amateurs for many years. They are used for most awards and certificates, and often when exchanging QSL cards.

If you are a VK or ZL amateur you will need 10 contacts with ALARA members from at least four call areas for the award. If you are a DX amateur you will only need contacts with five ALARA members from three call areas to qualify. The ALARA Contest is a perfect opportunity to hear those less common call areas to complete your list.

You write out the list of contacts you are using to claim your award, including date, time, band used and signal reports exchanged, along with your payment and your own address and send the list to Kathy VK3XBA either QTHR the callbook or by email at kathyg@spacelink.com.au. She will be delighted to printout your certificate, then, once it is signed by the President of ALARA, it

should arrive in the mail

Birthday luncheons - this year we are 33 years old!

This year there will be a special Birthday Luncheon at the end of the month in VK5 and in VK3 about which you will hear more in the next AR. The tradition of having special lunches for our Birthday started from the very first birthday. We are proud of our organisation and enjoy an excuse to celebrate. Sometimes they have been held at someone's home, but nowadays they are mostly celebrated in a restaurant.

This year ALARA turns 33. And as 33 is a special greeting exchanged between YLs (like 73 or 88), this is an extra special year.

HAPPY BIRTHDAY
EVERYONE

VK3 – metropolitan ALARA net

Jean VK3FJYL is the VK3 Representative for ALARA.

Jean extends an invitation for any YLs to join us on VK3REC 147.175 MHz for our regular ALARA net which goes to air at 8:30 pm Thursday. The net is open to all YLs – you do not have to be a member and in fact we have been known to talk to OMs when they have called into the net.

We would also like to see as many YLs as possible also take an active part in the EMDRC, it would be great to see you at the club meetings

Plan ahead
30 & 31 August

ALARA
Contest

Local ARISS identity interviewed on TV

Australian Telebridge coordinator and ARISS member Tony Hutchison VK5ZAI appeared on the Australian Channel 7's **Today Tonight**. He described his work with the educational ARISS program. WIA posted the news clip on its website with permission from Channel 7.

CUTE-1.7+APDII Earth pictures available

The camera on board CUTE-1.7 has been activated a number of times and now you can see the pictures in living colour by visiting the following web sites:

<http://lss.mes.titech.ac.jp/ssp/cute1.7/blog/01-04.jpg>

<http://www.ne.jp/asahi/hamradio/je9pel/cut17ap2.htm>

Other cubesat pictures are available on Mineo Wakita's web site. Mineo does a great job in alerting us to events like this via the AMSAT-NA bulletin board.

<http://www.ne.jp/asahi/hamradio/je9pel/>

Delfi-C3 / DO-64

Thanks from the control team. Wouter Jan Ubbels PE4WJ reports that the control team has received over 270,000 telemetry frames from amateurs around the world.

That makes them very happy of course and Wouter expressed thanks and the hope that amateurs would continue to support the experiments. DO-64 carries a linear transponder which will be turned on when the main experiments are done. You will find lots more information on their web site.

They have been very up front about this project with news coming regularly via the AMSAT-BB.

Software called RASCAL is available for making sense of the telemetry but some people have reported difficulties in decoding. Alan ZL2BX came up recently with a tip that may help.

"DO-64 can be difficult to sync without some sort of tuning aid. The signal has two strong components equally spaced about the centre frequency and these can easily confuse RASCAL.

If you display the signal on any program that has a 'Waterfall' display e.g. 'Spectran' or 'Ham Radio Deluxe',

you can then tune your receiver so that the centre component is exactly on 1600Hz and then RASCAL should decode OK".

Thanks Alan.

Ron Parise, ARISS founder SK

Astronaut Ron Parise WA4SIR passed away on Friday May-9. Ron was a key player in the development of the ARISS program and a strong supporter of educational outreach activities. He spoke with hundreds of hams on the ground during his Shuttle flights STS-35 and STS-67 and was the first to operate packet radio on the Shuttle.

He was instrumental in developing both the ISS Ham radio systems and the telebridge station concept with the specific purpose of encouraging students to pursue studies in technical fields.

One of my prized QSL cards is from Ron for a contact via SAREX-II on the Space Shuttle Columbia in 1990.

New Russian satellite

A launch from Plesetsk on May 23 carried a number of payloads into orbit, including a new Amateur Radio satellite

The AMSAT group in Australia.

National Coordinator: Paul Paradigm VK2TXT

Secretary: Judy Williams VK2TJU

Website: www.amsat-vk.org

E-mail for National Coordinator: coordinator@amsat-vk.org

E-mail for Secretary: secretary@amsat-vk.org

The AMSAT monthly nets.

Australian National Satellite net.

The net takes place on the 2nd Tuesday of each month at 8.30 pm eastern time, i.e. 9.30 Z or 10.30 Z depending on daylight saving. The AMSAT-VK net has been running for many years with the aim of allowing amateur radio operators who are operating or have an interest in working in the satellite mode, to make contact with others in order to share their experiences and to catch up on pertinent news. The format also facilitates other aspects like making 'skeuds' and for a general 'off-bird' chat. In addition to the EchoLink conference, the net will also be available via RF on the following repeaters and links.

In New South Wales

VK2RMP Maddens Plains repeater on 146.850 MHz

VK2RIS Saddleback repeater on 146.975 MHz

VK2RBT Mt Boyne Repeater on 146.675 MHz

In Victoria

VK3JED Preston, Melbourne on 144.296 MHz SSB simplex

VK3JED Preston, Melbourne on 439.175 MHz FM simplex with a 91.5 Hz CTCSS tone.

VK3RTL Laverton, Melbourne, 438.600 MHz FM, -5 MHz offset

Operators may join the net via the above repeaters or by connecting to EchoLink and either the AMSAT-NA or VK3JED conferences. The net is also available via IRLP reflector number 9509. We are keen to have the net carried by other EchoLink or IRLP enabled repeaters and links in order to improve coverage. If you are interested in carrying our net on your system, please contact Paul via email.

AMSAT-Australia HF net.

Members and interested parties are also reminded of our HF net which is held on the 2nd Sunday of each month.

See www.amsat-vk.org or www.ozsatgroup.info for details.

Amateur satellite operating is one of the most interesting and rewarding modes in our hobby. The birds are relatively easy to access and require very little hardware investment to get started.

You can gain access to the FM 'repeaters in the sky' with just a dual band handheld operating on 2 m and 70 cm. These easy-to-use and popular FM satellites will give hams national communications and handheld access into New Zealand at various times through the day and night. The organisers wish to thank the Illawarra Amateur Radio Society for carrying our net on the Coastlink repeater network and Tony - VK3JED for the use of his linking system.

Should you wish to join AMSAT-Australia, details are available on the web site. You will be made very welcome.

named Yubileiny. It was designed to be part of the 50th anniversary of Sputnik-1 celebrations. It has since been dubbed RS-30. Operational details are still vague at the time of writing. Its signal has been heard throughout the world on 435.315 and 435.215 MHz. Some report hearing CW telemetry while others report what appear to be image transmissions from the satellite. RS-30 is orbiting at a maximum altitude of 1500 km. This is higher than most LEOs and gives RS-30 a mighty footprint. The Russian publicity claims it will transmit audio and video about the history of the Russian space programs, and an imitation of the original Sputnik-1 signal from 1957.

CubeSat information

The cubesats keep on coming and it is difficult to keep up with them. For information on future launches, ESA have a web site which you should find informative regarding the cubesats. <http://www.esa.int/esaED/SEM2BPUG3HF_index_0.html>

Time to pass the baton

This will be my last AMSAT column for AR magazine. Twenty years ago, sitting at my BBC Acorn computer, the first monthly article on "Getting Started in Amateur Radio Satellites" took shape.

Shortly afterwards Graham Ratcliff asked me to take on the writing of the monthly column. The amateur radio satellite scene is so dynamic that breaking news can often be old hat in a week so the columns take on more of an archival role.

Our new AMSAT-Australia coordinator Paul Paradigm VK2TXT will be taking on the task of writing these columns from now on. In wishing him well, it is my hope that Paul will receive the same welcoming and encouraging feedback that has been my good fortune.

Paul will be ideally placed at the centre of things, keeping an eye on the bigger picture so the AR column will serve as a powerful tool for him to record the passing parade of satellite happenings from an Australian perspective.

A lot has changed in the AMSAT scene in the past 20 years. The changes have echoed those in amateur radio as a whole. An inexorable move higher in frequency. The introduction of exotic modes of operation. A greater dependence on computers with increasingly

sophisticated software.

Twenty years ago microwaves were in the too-hard-basket for most of us. The internet was in its infancy and known only to a privileged few. Computing itself was a black art when the first amateur radio satellite was launched. Its practitioners were portrayed as hunched, square-eyed people who rarely left their smoke-filled back rooms.

Please allow me a few pars to briefly review the history of the Amateur Radio Satellite Service as seen from the beginning. The 4th of October 1957 stands out.

Sputnik-1 was so tiny but what a punch it packed. Itself too small to see easily from the ground but part of the launch rocket also went into orbit along with the Sputnik. Many Melbournians including myself watched in awe as it soared over the darkening evening sky that night.

Due to a fortuitous inclination and launch time, Melbourne was the first large populated area in the world to witness the passage of an artificial earth satellite. The 20 MHz beacon was loud and clear as it zoomed across our sky. Those were the days when AM and Morse still ruled.

My old cobber Neil Towne VK3ANK, now a silent key but then a Melbourne Herald newspaper photographer, took the world's first published picture of an artificial satellite that night. With a thin stripe of light his aging Rolleiflex camera told the story. The picture was broadcast over every wire service in the world and graced the front page of the following morning editions.

What followed is documented history – but what may not be so well known is that almost immediately a group of radio amateurs in America met to discuss the impossible dream of building and launching an Amateur Radio Satellite.

Without their contacts in the then infant space industry, it would have been impossible. A mere 4 years later, with the first commercial communication satellite still on the ground, we saw the piggy-back launch of Oscar-1.

The saga of Oscar-1 is remarkable. ARRL

publications proudly record its story. But just imagine the excitement when the builders, straining their ears at the receiver heard the first Morse "didididit, didit" - "hi-hi-hi" the telegraphic laugh as the tiny amateur built satellite appeared over the horizon an hour or so after launch. Amateur radio satellites were a dream no longer. Oscar-1 was a very simple device but its message was heard by tens of thousands of radio amateurs.

We predicted the return of the early Oscars with cut-out cardboard devices that became known as Oscar-locators. Oscar-3 carried the first amateur radio transponder aloft in 1965.

Australia featured in the construction of the electronics box for Oscar-5. It was designed and built by Melbourne University's Astro-physical Society aided by local radio amateurs. Proudly known as "Project Australis", it was the first amateur satellite to transmit telemetry and the first to have an element of ground control.

When AMSAT-VK was formed, it was one of the first AMSAT groups outside the USA, so we have a long, proud history.

Later digital transponders became a reality and earth pointing cameras produced finely detailed images from the Oscars. Again an Australian featured prominently with an image processing program developed by Colin Hurst VK5SHI quickly becoming the industry standard.

In the very early days, Bob Arnold VK3ZBB had access to late information which formed the basis of the local HF and VHF nets which allowed Chas Robinson VK3ACR and Graham Ratcliff VK5AGR to relay the EQX data to users.



Sputnik 1 where it all began

Robin Harwood VK7RH

No one had heard of Keps, hardly anyone owned a computer. Graham took over as co-ordinator of AMSAT-VK and the net in 1983.

So – here we are today more than 20 years on and poised between HEOs as it were. AO-10 is approaching the end of its long life and AO-13 re-entered after giving years of service. We shared the disappointment when AO-40, AMSAT's most recent flagship HEO met an untimely end while commissioning was still taking place.

We now eagerly await the launch of P3E and in the meantime the so-called **easy-sats** reign. They are catering for newcomers and oldies alike and will continue to do so even after the much anticipated HEO launches. The International Space Station has filled the gap left when MIR was de-orbited. MIR provided us with many fine contacts using simple ground station equipment.

Again we in VK can be proud of outstanding local efforts like those of Maggie VK3CFI who figured prominently in early contacts with MIR. Her packet radio contact with Musa Manarov on 16 January 1991 was a world first.

We are still reaping the benefits of the positive effect that amateur radio had on the early Russian crews. It helped cement amateur radio's now privileged place in manned space operations. We sometimes take that for granted. But it required goodwill.

The kind of goodwill generated out of events like Maggie introducing the girls from her high school class to the Russian Cosmonauts back in the 90s. The result of this and many similar events can be seen in AMSAT now having a firm, long standing relationship with NASA, ESA and other launch agencies. Our name is up there and we can look forward to participating in future Moon missions and even Mars exploration. Seems impossible, does it not, but then Oscar-1 was just a dream in 1957.

Thank you to all those who have helped with contributions to the column over the past (gasp) 20 years. It has been a great pleasure, a wild ride and a wonderfully exciting and on-going learning experience.

73,

Bill Magnusson VK3JT
Milawa, Victoria.

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At last the Beijing Olympics have arrived and from the eighth of this month, I do expect that these will be extensively covered on shortwave.

As you are aware, the Chinese have an extensive shortwave platform, both inside the PRC and over several senders in other regions. I know that it is going to be very easy to hear Chinese coverage of these Games, as they want to capitalise on them. Of course, other international broadcasters will also be live or have delayed coverage of the various events.

However it will be a very different story on the Internet as the IOC has severely restricted any live coverage for many years. Many broadcasters opt out of streaming altogether on the Net whilst the Olympics are on because of the rights issue.

Austria has announced that it will be closing its shortwave senders yet has not given a date when these shall fall silent. Deutsche Welle also would like to phase out shortwave but knows that alternative platforms are difficult or non-existent within certain regions, such as Africa.

Radio Singapore International also ceased on the 31st of August but it remains unclear if shortwave will continue to relay the domestic services after that date. The parent organisation of the VOA, the International Broadcasting Bureau, also has announced further cuts in their various language sections of Radio Free Europe and the VOA.

I also note that there has been an increase in transmissions beamed to Africa. The reduction or cancellation of services to other target audiences means that senders are now available to concentrate on Africa.

Internet access to this region is very poor, so streaming is beyond the reach of many. Also some governments in Africa are very reluctant to permit local broadcasters either relaying international programming or permit broadcasters, such as the BBC, DW or the VOA, from installing their own FM senders.

Zimbabwe has been in the news for some time and has now banned citizens listening to overseas stations or having satellite dishes. It also recently banned the possession of wind-up radios.

I have noted that the Voice of Indonesia

in Jakarta now broadcasts in English at 1300 on 9526 kHz. It has been heard in North America and should be easily heard here but the modulation is well down. There has been a steady decline in the number of domestic Indonesians now broadcasting on shortwave.

I also have heard that those domestic Nuiginian stations on the tropical bands may not be there for much longer. The big powerhouse signal from Port Moresby has not been there for some time. If only the propagation would improve. This solar cycle seems to be longer than was initially predicted.

Well that is all for now. Spring is just around the corner and hopefully there will be more to hear.

73 de VK7RH

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DX – News & Views

John Bazley VK4OQ

P.O. Box 7665, Toowoomba Mail Centre, QLD 4352. Email: john.bazley@bigpond.com

First I want to thank Ernie VK3FM for writing last month's edition of DX News & Views - as I write this I look forward to reading his article!

So what DX do we have coming up?

Willis Island, VK9W, will be a big DXpedition to look for in October. This is the sequel operation to the February, 2007 VK9DNX Norfolk Island expedition which logged 60,000 QSOs.

The same team, DJ7EO, DJ9RR, DL1MGB, DL3DXX, DL5LYM, DL6FBL, DL8OH and DL8WPX, plan to be on the island, with four high power stations. They will be on for 17 days, 160-10 m CW, SSB and RTTY. Landing permission has been received. They say they have already secured a suitable charter boat. They arrive in Cairns, October 5th, embark the 6th, and arrive on Willis the 8th. They leave the island October 28th. <http://willis2008.dl1mgb.com/> Due to the saltwater QTH, the Willis Island ops have chosen to mainly use vertical antennas. They do not plan any 60 m operation, or 6 m and above. There will be no SSTV this time.

G3RWF, Nick, is once again heading back to Fort Portal, in western Uganda where he will be QRV as 5X1NH from June 25th to August 15th. QSL via G3RWF.

Prasad VU2PTT will be active in the IARU Contest using his special call sign AT6T as the HQ station. Look for AT6T giving out the ARSI multiplier on 80-10 m CW & SSB during the IARU contest. Prasad has permission to use this callsign from 1st July until end of September 2008 and you may work this special call in other contests as well. As usual, all QSOs will be uploaded to the ARRL Logbook of the World (LoTW) and QSL requests may be made to VU2PTT direct (QRZ.COM) or via the ARSI bureau. Please use one current IRC for direct requests, green stamps have a habit of disappearing in the postal system along with your QSL card. It is also not legal in India to send or receive currency by postal mail, and the recipient can get into trouble!

Four operators will be on **OC-181, the Witi Islands, and OC-041**, the

Ninigo Group, both belonging to Papua-New Guinea, P2, for an operation between October 18th and November 4. Operators G3KHZ, G4EDG, CT1AGF and W5GAI are still looking for two more operators. Contact G3KHZ, Derek, using his QRZ.com info. Last year the same guys went to Nukumanu, Taku'u and Kiliainlau. They are hiring the same scuba dive boat this year that transported them last year.

Sigi DL7DF and his crew have announced that their next DXpedition will be to Botswana in late September and early October. The crew includes Manfred DK1BT, Wolf DL4WK, Andy DL5CW, Sigi DL7DF, Frank DL7UFR and Leszek SP3DOI. They will operate as A25/DL7DF from September 23rd to October 6th. Activity is expected on 1.8 through 28 MHz on CW, SSB, RTTY, PSK31 and SSTV. They will have several stations QRV, one of which will be exclusively dedicated to RTTY, PSK31 and SSTV.

The crew has a Web page at <http://www.dl7df.com/a25>. Two pilot stations will be used for this operation. They are Bernd DF3CB (bernd@df3cb.com), and Floyd N5FG (n5fg@mdxa.org). QSL cards can go to DL7DF either direct to: Sigi Presch, Wilhelmshafenweg 123, D-12621 Berlin, Germany or via the German QSL bureau. Direct QSLs should go with SAE and 1 IRC or 3\$ US for outside of Europe or 1 IRC or 2\$ US for mail within Europe.

DL2AH goes to **ZK3 and KH8** in September and October. He has applied for the ZK3AH callsign for 14 days in September, the exact dates dependent on the ferry schedule. The ferry can only be booked upon arrival in Apia, Samoa. KH8/DL2AH will be on Manua Island, OC-077, some time between October 8 and 27. Uli works 40-10 m SSB and RTTY. He will have an FT-897 and a Windom.

Harry 7Q7HB is now in Malawi for an indefinite stay. He particularly wants to help people needing PSK31 and RTTY QSOs with Malawi. QSLs should go via G0IAS only.

It was good to hear from **Allan VK2GR** with a list of DX that he has worked over the past three months using wire antennas. Incidentally, Allan is the only person that I know who has received a QSL card for last year's VK9 Willis Island operation!

April:

40 m - HP8/JA6REX, E74EW, 9M6XRO, F/EA8AY;
30 m - T18/DL4MO, HL0HQSC, A15P/KH0, YT30FOC;
20 m - KH0/JE1RRK;
17M - KH0/JE1RRK, XW1B, V63JY, V85SS;
15M - HS0AC, 3W3W

May:

160 m - KH0R;
80 m - NH6V;
40 m - YN4SU, XE2S, 403A, 3D2A, 8J3GOSE;
30 m - VQ9LA, 3D2A, CO8LY;
20 m - 3D2A, TI2OY, V73NS, 4Z5AD/60, FK/JK1FNL

June:

40 m - XW1B, KH0N;
30 m - 4W6R;
20 m - 4W6R, V85SS;
17 m - 4W6R

Allan found that 160 m, 80 m and 15M were poor for DX from Sydney. Only 27 prefixes were worked in the CQ WW CW Contest in May with a modest score of 12,609 points.

Clay Brown K7HC plans to be in Belize from September 1st to 15th with planned activity on CW and SSB on 80 through 10 metres, as V31HC. He will be running 100 watts and a Big IR vertical, as well as an 80 metre dipole. QSL via K7HC.

Antonio Duarte Bebiano CT1CPP is expected to be active soon as TT9/CT1CPP from **Chad**. He should remain in that country with the United Nations for one year. QSL via home call, direct only.

Freddy FSIRO and **David F8CRS** will be visiting the French islands of **Martinique** and **Guadeloupe** from August 4th to 21st. First they will be

QRV as TO8S from Les Saintes Island (NA-114), Martinique from August 4-17. They will have two stations with activity mostly on CW on 3.5 to 28 MHz, with some SSB and RTTY. During that same time period the two will try to operate from Guadeloupe (NA-102) for three or four days. They will take with them one station and will use FG/F5IRO and FG/F8CRS.

They will also operate from Martinique (NA-107) from August 18th to 21st using FM/homecall. QSL via F8CRS either via the bureau or direct (with SAE and postage).

India's National Institute of Amateur Radio's (NIAR) "Ham News" has some details of the prospective VU4/VU7 operations for October 24 - November 3. If you wish to register to go, details are at <http://www.niar.org/sj/form.html>.

Look for Jean-Louis F5NHJ to be operating as FK/F5NHJ from Grande Terre (OC-032), New Caledonia from August 12th to 29th. Activity will be mostly on CW and the digital modes on 30 metres. While there he will also try to activate one or more other New Caledonian islands. He plans to upload his logs to LOTW and will have a log search at <http://www.f5nhj.fr/logsearch>. QSL via operator's instructions.

Tom LA4LN will be QRV from Spitsbergen Island (EU-026), Svalbard from September 12-18. While there he will be QRV on 60 metres as JW1V. He will also operate JW4LN on 160 metres through 70 cm, mostly on CW with some SSB, digital modes and possibly Satellite.

Tom will have an IC-7000, various wires, and a beam for 10, 15 and 20 metres and possibly on 6 and Satellite. QSL cards must go direct only to LA4LN, Tom V. Segalstad, P.O. Box 15 Kjelsaas, N-0411 Oslo, NORWAY. More details can be found at www.qrz.com/jw1v.

Happy DXing.

Special thanks to Ernie VK3FM and the authors of The Daily DX (W3UR) -- 425 DX News (I1QJQ) and QZDX for information appearing in this months DX News & Views.

For interested readers you can obtain from W3UR a free two week trial of The Daily DX from www.dailyydx.com/order.htm

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Francis [Frank] Alec Eastick VK4VN

4 June 1923 - 25 March 2008.

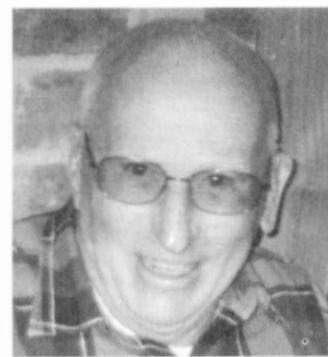
Frank went to school in Kingaroy; his teacher was a Mr Tyas, an amateur radio man, with the result that he was hooked on radio for the rest of his life. He gained his Amateur Radio Licence and also the Broadcast Station Operators Certificate of Proficiency.

In 1941, he enlisted in the Army, doing communications until his discharge in 1946. At the time of his discharge he was in Rabaul and Lae, Papua New Guinea, and stayed on working with Posts and Telegraphs. He also worked in Honiara, British Solomons, from 1950 to 1954. On return to Port Moresby, he worked with the DCA and it was here that he met his future wife Nancy Kemp, a Girl Guide Trainer.

Frank and Nancy enjoyed over 40 years of a busy, interesting and contented life together, for which Nancy is so grateful and she thanks him sincerely.

Frank was a perfectionist in all he did; he always took great care of Nancy and their properties. Nancy is so grateful for the comfort she received from the many cards, beautiful flowers, phone calls and visits. She did appreciate the love, care, time and practical help and support from many friends at this stressful time.

In 1976 Frank and Nancy bought 4 acres at Horseshoe Drive, Mudgeeraba (The site of the first Gold Coast Hamfest 29/07/1978), where they lived until they sold it in 1983 and moved to Earle Haven



in Nerang. It was here that Frank passed away with acute leukaemia on 25th March 2008.

The Memorial Service held on the 10th April 2008 in Earle Haven Chapel was an appropriate farewell to Frank. Nancy wishes to thank all those friends who attended and those who were able to help organize the service including the Nerang RSL.

Time will not erase the many happy memories Nancy has of her Frank.

Frank was a happy man and supported the group meetings and parties conducted by The South Coast Amateur Radio Group.

A good dependable man loved by many and sadly missed.

Submitted by Ken Ayers VK4KD.

Cliff Donoghue VK3DQ

I am sad to advise that my husband Cliff VK3DQ, of East Brighton, passed away on 2 October, 2007, after a short battle with prostate cancer, at the age of 87 years.

Cliff was active almost until his passing, talking both around Melbourne to his local amateur friends, and internationally, in particular to amateurs throughout the USA.

Cliff was a wonderful source of advice, knowledge and wisdom to his family and

friends, of which knowledge he gave freely and cheerfully at all times.

Perhaps a highlight of his amateur life was in being involved with a distress call from Alaska, which he heard one day whilst on air, wherein he then advised the US government of the situation. He subsequently received an award from the US government for his assistance.

Cliff left a wife Patricia, and two sons Philip and Peter.

Submitted by Patricia Donoghue.

VHF/UHF – an expanding world

David Smith VK3HZ
vk3hz@wia.org.au

Weak Signal

David Smith VK3HZ

There has been a bit of winter action during the last month. On the evening of 14th June, Brian VK5BC worked Mark VK2EMA on 2 m – a distance of 840 km. Bill VK5ACY, who recently pulled up stumps from Kangaroo Island and is busily re-establishing his station in the suburbs of Adelaide, also worked Mark – an 880 km path. The following afternoon, the path from Adelaide to northern Tasmania was up with Phil VK5AKK working John VK7CEJ – 1014 km.

On the morning of 23rd June, the Hepburn Tropo Prediction site was showing some interesting conditions. A high-pressure cell over the Bight brought a prediction of enhancement from southern WA into central NSW, moving to the northeast. Sure enough, Mark VK2EMA reported the VK5VF 2 m beacon at 5x9 and worked Brian VK5BC on both 2 m (5x9) and 70 cm (5x7). At 0115Z, Leigh VK2KRR worked Jeff VK5GF on 70 cm at 5x9 (768 km). Leigh then reported hearing the VK6REP 2 m beacon at Esperance – 2312 km away! A double check of the FSK frequency shift confirmed that it was indeed the Esperance beacon. Leigh quickly telephoned Bill VK6AS in Esperance to see if he could come up on 2 m. Unfortunately, Murphy had got in ahead of Leigh, and the power company had chosen this particular day to upgrade the power feed to Bill's area, so he was without power for the next 5 hours. Leigh continued to hear the beacon on

and off for the next 2 hours, but could not raise any stations at the other end of the path.

However, that was not the end of the excitement for the day. Late in the evening, at 1300Z, Phil VK5AKK reported hearing the VK4RTT 2 m beacon at Toowoomba – 1525 km away. Brian VK5BC and Bill VK5ACY could also hear the beacon peaking to 5x1 with the callsign easily copied. The beacon continued to QSB in and out until about 1500Z by which time everyone had retired for the night. Unfortunately, it was again the case that nobody could be raised at the other end of the path, so no contacts were made.

Winter VHF/UHF Field Day

The resurrected Winter Field Day was held on the weekend of 21/22 June. Participation was good despite the cold conditions in the south of the country, although it seemed that many chose to enter the 8-hour section, retreating to the warmth of the home QTH after operating on Saturday afternoon.

Rod VK4KZR dragged his 2.4 GHz system up to Maleny to provide a contact and grid square for Doug VK4OE (and to enjoy the good coffee at the Swiss Bakery/Café in the main street of Maleny). Rod's setup consists of an FT-290RII driving a Minikit transverter and 300 mW PA with a HEMT LNA into a WA5VJB 2 - 6 GHz PCB Log Periodic

antenna. He reports that signals were understandably excellent over the 85 km (near LOS path).

Ron VK4WIE/3 reports on the VK4WIE/3 operations at Byron Bay:

Ron VK4CRO woke us up 3.15 am with loud music and lights, because he heard on the BBC World News that it was 5 am ... It was about 9 degrees outside so it was sort of OK, but the real chill factor came from the wind. Eric VK4NEF was the real diehard of the group. He slept outside in his sleeping bag. The tower with the 23 cm antennas moved quite a bit because of the gusty winds, and we had a number of reports of heavy QSB on the signal ... I think we knew where QSB was coming from.

Operators: Eric VK4NEF, Ron VK4CRO, John VK4MF, Ron VK4KDD.

Total Contacts: about 200.

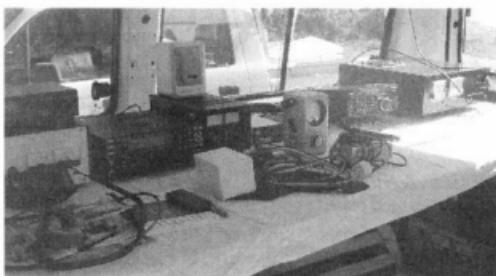
Propagation was not real flash. But we could work any station any time in a 500 km range. Nothing in or beyond Sydney was heard or worked.

Our antenna farm consisted of a 2 m / 70 cm vertical, single 2 m Yagi, 6m Yagi and vertical, 2 x 23cm Yagi with 70cm Yagi above and 2 x 2 m Yagi.

Below is a photo showing the interior of one of the vans used for 2 m, 70 cm and 23 cm. The 23 cm IF (FT-817) is behind the Bird wattmeter - the transverter and PA were all fitted on the mast and "waterproofed" by a plastic bag and tape. The box on the right under the



VK4WIE/2 Antenna Farm



VK4WIE/2 Operating position

table is the 2.5 kV power supply for the 70 cm amp. On the left is the 2 m amp with built-in HV supply. On top of the 2 m amp sits the 2 m transverter.

On the far left (not on the picture) are the rotator controls. Because of the ice cold wind and possible rain we thought it would be more comfortable to operate inside one of the vans. And so it was. The temperature inside was still 19 degrees, while outside the temp had dropped to 9 degrees. The warm air from the tube amplifiers was more than welcome.

Hugh VK1YYZ describes a more modest approach to the Field Day:

I had not really planned on participating actually. Still, on a lovely clear if cool Sunday morning I thought I might as well at least give a few numbers out for the locals, and try a new QTH, which is about 810 m ASL.

Radio-wise, the plan was to use the IC-706 with a Gel Cell for a bit of grunt - Gel Cell which I meant to keep on float charge, but did not and at 7.8V was not going to help anyone. Scratch radio option #1.

I have a love-hate relationship with my FT-817 - love the rig, hate the fact that it never seems to keep charge. But, it had been connected to the PSU so ought be good, I thought. The Power button seemed to confirm this.

A Diamond X50 vertical (2x1/2 wave on 2, 3 5/8ths on 70 cm, I think) is set aside for such occasions, so that was the antenna sorted. A length of LMR400 Ultraflex for feed is likewise on hand for such times.

Antenna mounting - hmm, isn't there a burnt out tree stump at the top of the hill? Sure is, and it turns out that it is conveniently rotted down the middle allowing easy insertion of a metre or so of the aluminium mast.

I grabbed a folding chair and a notepad and headed up to the top of the hill.

The antenna went together quickly and I heard Chris 2DO and Andrew 1DA pretty much straight away. Worked a couple of locals on 2 m but could not hear anything on 70 cm - just assumed it was antenna efficiency (or lack thereof).

Chris commented that I was very weak on 70 cm and the penny dropped that I still had the front antenna socket selected for 70 cm - I had forgotten that the FT-817 selects per band. Chris being

less than 300 m away was hearing me operating into the empty BNC socket on the front of the rig - an often-overlooked antenna option.

With 70 cm setup a little better, the rig immediately shutdown when I selected high (5 W) power. The battery had not charged as much as I thought, it seems. Went to ultra low power and managed to give out a few more numbers on 2 m and 70 cm before calling it a day.

Seems to be a good location - very quiet. Next time I will fashion a mount for the Arrow portable beam to get around the vertical polarisation losses and have a bit of directivity.

Oh, and I will make sure I have charged batteries...

Andrew VK1DA put in Saturday afternoon and Sunday morning on a mountain near Canberra in winter ... and survived to tell the tale:

I made about 97 contacts on 4 bands. DX conditions did not seem too good. Red Hill was an adequate site but nothing special. The weather was so mild I may as well have gone to Ginini, where the forecast was for very similar temperatures to Canberra - about 2 to 14 max.

I operated from the car and several times started the engine and ran the heater on max to thaw my feet out - forgot to take the Ugg boots and beanie. It was only mild though compared with what I expected. In the morning there was no frost so I could carry the cold mast and antennas without much pain.

The nice surprise was some local interest with a number of people operating from hills using their multiband radios, or from mobile setups. In particular, Ian VK1FOTO borrowed a 3-el beam from



The FAMPARC Team



FAMPARC on Mt Donna Buang

me and then drove up to Mt Coree on Sunday morning, working several grid squares for his first ever operation on 2 m SSB using a new FT-817.

I had four licensed amateurs visit the site during the contest. They were interested to look at the setup, talk about why I had done things this way or that, and were pleased to be able to look at a working portable station. They also provided some much-appreciated help in walking the antennas up and down, assembling the mast and moving the generator.

Stjepan VK3TSN reports on the FAMPARC VK3FRC effort on Mt Donna Buang:

The night before the contest we loaded everything into our vehicles - and even more, just in case, so that we did not have to improvise at the mountain.

The next morning, we departed around 7 am, stopping along the way to fill the generator and extra 10 L canister. By that time Andrew had already arrived in Warburton, so he took another 30 minutes nap until we arrived.

continued next page

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continued from previous page

When approaching the mountain, we could not see the whole mountain as it was hidden in the clouds. I was hoping that we might be lucky later during the day - from my past experience it can be sunny at the summit (above the clouds) and rainy in the valley. But this time it did not happen - the clouds were much higher and there was rain and wind as well. In fact, we had rain for the whole day, from arrival to departure, with only a few short breaks. Plus we were inside the clouds all the time. The temperature hovered around 5 C and even my CFA waterproof boots somehow leaked.

At the summit we met two Park Rangers with whom I had an email correspondence. We exchanged a couple of courtesy words, thanking them for the use of the site.

Due to harsh weather conditions it took us double the time to set up everything compared to our trial run. We decided not to erect FM antennas due to cold fingers, running noses, wind and rain.

We finally completed setup of all equipment and antennas around noon and then started calling CQ Contest. The first hour was finished with 12 contacts on all three bands. Then BANG! Leigh VK2KRR was telling me that we have a very strong signal near Wagga Wagga and that we should work many stations in NSW, but unfortunately it did not happen.

Two hours later, it was very relieving when Andrew fired up his portable BBQ. Warm pumpkin soup and hot sausages gave us plenty of energy to continue.

Five hours later, the enthusiasm was waning and stations thinning. My radio started playing up with high SWR - I suspect the coax or antenna connector became wet due to constant rain. We then packed everything within an hour and departed the site.

Total number of contacts: 72. The longest distance: 301 km (VK2KRR)

Equipment we used:

*6 m - IC-706MKIIG, J-Pole Vertical
Ant*

*2 m - FT-100D, Amp Dick Smith
K-6313, 12 el Yagi, Rotator*

*70 cm - IC-706MKIIG, 23 el Yagi,
Rotator*

It will be interesting to see how we stack up on the score list.

First 10 GHz Contact

Dave VK2TDN is happy to report his first 10 GHz QSO:

Sunday 22nd June saw my first QSO on 10 GHz SSB. It has been a long time in the construction and planning.

The contact was over a 95 km line-of-sight path from the inner west suburbs of Sydney to Mt Gibraltar, southwest of Sydney.

Ted VK1BL at Mt Gibraltar was using a DEMI transverter with a 3W amp into a 650 mm offset dish. I was also using a DEMI transverter with no amp and initially, an offset dish, then moved to a pennified prime focus 1 m dish.

Ted's signal was extremely strong - whilst changing dishes, I could still receive Ted's signal easily with no antenna connected to the coax! A tribute to both the power Ted was transmitting and the hot receiver in the DEMI transverter.

With the prime focus dish, Ted gave me a 5x9+ signal and I gave him a 5x9+++ - off the end of the scale. A 20 dB attenuator inline brought Ted's signal down to 5x9+20 or so and my signal down to a 5x4 - and my Tx level down to 0.2 mW at the antenna.

Looking forward to increasing the path distance and improving my offset dish feed, which was far from optimum as demonstrated when we moved to the second dish.

At Ted's end of the link helping out was Owen VK1OD and at my end Jack VK2TRF, my regular "partner in crime" when it comes to microwave hilltopping activities.

Please send any Weak Signal reports to David VK3HZ at vk3hz@wia.org.au.

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VK2 VK2WI: Sunday 1000 and 1930 local, on 1.845, 3.595, 7.146, 10.125, 14.170, 28.320, 52.525, 145.6000, 147.000, 438.525 and 1273.500 MHz. Also 5.425 MHz USB in the morning..
Plus provincial relays both sessions and country relays in the morning via local repeaters. VK1WIA news is included in the morning.

VK3 VK1WIA: Sunday 10:30 am and 8 pm Local Time. Amateur Radio Victoria VK3BWI B/cast Network: 3.615, 7.158, 10.130, 147.250 VK3RMM Mt Macedon, 146.700 VK3RML Mt Dandenong, 147.225 VK3RWG Mt Baw Baw, 438.075 VK3RMU Mt St Leonard.

VK4 VK1WIA: Sunday 0900 local via HF and major VHF/UHF repeaters.

VK5 VK5WI: Sunday 0900 local, on 1.843, 3.550, 7.140, 28.470, 53.100 AM, 146.900 (SE), 146.925 (CN), 147.000 and 439.975

VK6 VK6WIA: Sunday 0900 local, on 1.865, 3.582, 7.075, 10.125, 14.116, 14.175, 21.185, 29.120, 50.150, 146.700 and 438.525 MHz. Country relays on 3.582 MHz and major repeaters. Repeated Sunday, 1900 local, on 1.865, 3.565, 146.700 and 438.525 MHz. Country relays on major repeaters. Also in 'Realaudio' format from the VK6WIA website.

VK7 VK7WI: Sunday 0900 local, on 1.840 AM and 3.570 MHz and on major repeaters.
VK7 regional news follows at 0930 local, on 7.090 and 14.130 MHz, and on major repeaters.

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